University of Alberta

Multiple Intelligences Theory in Practice:

A Case Study of Two Teachers Taking Ownership of Theory

by

Elisabeth Thomsen

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of Doctor of Philosophy

in

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Dedication

To my Mother, Anna-Lisa,

with gratitude for her unwavering love and support

Abstract

This study examines theory practice relationships, specifically the mediation process involved in the application of Gardner's multiple intelligences (MI) theory in classrooms. The purpose of the study is to examine this complex process in order to bring greater understanding of the nature of theory application, and to probe how links between theory and practice might be strengthened. The research is guided by the general question: How does mediation of MI theory inform the nature of theory application?

Three interdependent phases of theory application are explored: (a) Philosophical Phase, (b) Interpretive Phase, and (c) Practical Phase. Critical to theory application in the school setting are teachers' values and beliefs, teachers' understanding of the theory, and teachers' decisions in trying to create a fit between the abstraction of the theory, in this case a concept of human intelligence, and the practical realities of the classrooms.

A multiple case study design for the data collection was employed, with two teachers selected for the case study. Data sources included: classroom observations, interviews with teachers and principals, document analysis, and field notes based upon observations and informal talks with the teachers. A modified coding system, based upon the "Good Work Project," was used to analyze the data.

The study compares and contrasts views on the theory practice relationship from the literature with the two teachers' theory application. Various issues are addressed, including tensions between theory and practice, as well as between theorists and practitioners. Suggestions for possible improvements are provided, such as increased collaboration, and the role of theory in teacher education.

The findings suggest that theory application is a messy endeavor, which is highly dependent upon the context. Nonetheless, certain similarities between MI applications in diverse contexts emerge. Teachers in various countries adopt similar values and beliefs about human intelligence, and instructional practice, because of the theory. These values and beliefs give rise to a change in perception, which results in common themes in the application.

The theory does not appear to be binding upon the teachers' practice. Rather, the teachers use MI theory for their own purposes, thus taking ownership of the theory.

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Chapter I

INTRODUCTION

Do not then train youths to learning by force and harshness, but direct them to it by what amuses their minds so that you may be better able to discover with accuracy the peculiar bent of the genius of each. – Plato

It's a miracle that curiosity survives formal education. – Albert Einstein

Imagine being in the African bush with a good camera. Using a telephoto lens, you zoom in and out of the phenomenon of interest. You look at it from afar; you zoom in and study it in detail. For months, you spend time with the chosen object, trying to understand what makes it tick. What makes it behave a certain way? What is the nature of this beast? You ponder it in light of what other observers have noted. Your interest in the beast emerged from the books, and now, in the dusty, hot bush, among moments of exhilarating satisfaction and utter frustration, you see it for yourself. When the time is ready, you return to the books. After your experience with the beast, the read is better. You find similarities and differences between your own experiences and the accounts in the books. Some authors are closer to your interpretation than others. From your study, you can add something to the knowledge base of the beast. Although your insights seem earth shattering, the journey is perhaps most meaningful to you. Yet, there is a lingering hope that your contribution will influence the world in a positive way.

This study is a microanalysis of the nature of theory application. Using a case study approach, I propose to contribute to scholarship in the area of applied theory through research into how two elementary teachers implement Gardner's multiple intelligences (MI) theory in their classrooms. I have selected MI theory for two reasons: (a) it serves as an example in illuminating the nature of theory application, and (b) it is a

potentially useful teaching tool that warrants further attention. In this chapter, I introduce the following topics:

- emergence of MI theory,
- mediation of theory,
- research questions,
- significance of research, and
- reasons for undertaking this research.

Emergence of MI Theory

Gardner, a developmental psychologist, posited MI theory in 1983 to an audience comprised primarily of psychologists. Although he was not the first to propose a theory of the pluralism of human intelligence, Gardner's theory drew an unusual amount of interest from educators and the general public. The press and broadcast media were intrigued by the notion that people could ascertain their own intelligences; the theory was debated on television and in public forums; Gardner's book, *Frames of Mind: The Theory of Multiple Intelligences* (1983/1993a), sold beyond expectations, and the author's audiences grew in rapid numbers. While most psychologists ignored Gardner's unorthodox definition of intelligence, educators from many countries embraced the theory and started to use it as a framework for instructional practice. Briefly, the theory posits that humans have multiple intelligences rather than one general intelligence. An educational implication is that schools need to address all intelligences in order to develop the potential that resides within each student.

MI theory has evolved over time – seven intelligences in 1983, eight in 1995, and a ninth on the horizon – and the theory continues to gain popularity among educators.

Gardner's books (20 in print in 2002) continue to sell worldwide with new translations appearing in various languages. Numerous translators of MI theory have created extensive teaching resources, both in print and audio-visual forms, and the theory has caught the attention of major educational organizations such as the Association for Supervision and Curriculum Development (ASCD). This association is a leading publisher of MI-related books and resource materials and devoted the September 1997 edition of *Educational Leadership* to MI theory, with a focus on school implementation and its outcomes. Similarly, *Phi Delta Kappan* dedicated the May 1998 issue to "teaching for intelligence" and addressed "brain-based education" in the May 1999 issue.

Countless educational conferences focus on MI theory and brain-based learning as the interest in these approaches to teaching and learning have increased (see e.g., Abbott & Ryan, 1999; Campbell, Campbell & Dickinson, 1996; Haggerty, 1995; Jensen, 1998; Lazear, 1991, 1994; Sprenger, 1999, 2002; Sylwester, 1999). Sessions focusing on MI theory typically reach capacity at annual ASCD conferences, with delegate numbers ranging from 12,000 to 15,000. In Vancouver, Canada, the October 2000 *Hearts and Minds: Creating Intelligent, Caring Classrooms and Schools* conference focused upon "brain research, multiple intelligences, human emotions and how people learn" (Conference Outline). During the October 2000 *Institute for Sharing Best Practices to Enhance Student Achievement*, offered by Edmonton Public Schools, Edmonton, Alberta, sessions on multiple intelligences theory, brain-based learning and project-based learning proved most popular among the delegates. Similarly, well-attended *Reaching and Teaching* conferences in April 2001 and 2002 in Calgary, Alberta addressed various intelligence themes within the context of the classroom.

The literature likewise reflects an interest in MI theory. Critics question the commotion surrounding the theory and suggest that it might be more opinion-based than research-based. Guskey (1999) asks, "Do we have evidence showing that a thorough understanding of brain functioning and neuroscience leads to more effective instructional practice and improved student learning? No, we don't!" (p. 11). Collins (1998) observes that "evidence for the specifics of Gardner's theory is weak, and there is no firm research showing that its practical applications have been effective" (p. 63). Others object to Gardner's rejection of *g* (a general intelligence) as a valid explanation of human intelligence, his notion of compartmentalizing intelligence, and his lack of psychometric and quantitative evidence to support MI theory (Herrnstein & Murray, 1994; Nettelbeck & Young, 1996).

Sternberg (1983) questions whether "Gardner's book deals as much with multiple *intelligences* as it does with multiple *talents*" (p. 221). He argues:

> Behaviors, such as those under "bodily-kinesthetic intelligence," are simply outside the range of what is normally considered to be intelligence: Athletic ability and dancing ability are certainly human talents; Gardner's view of them as falling under the rubric of intelligence appears to be idiosyncratic to him, at least for the time being. (p. 221)

Sternberg (1983) also voices a concern that the theory is ill defined because it offers elusive boundaries.

> If one were to seek to test Gardner's theory of linguistic intelligence, one would not know where to start, because there is no specifiable set of constructs to test. As a result, it is unclear what the boundaries, and even the core, of linguistic

> intelligence are. The same problem holds for all of the multiple intelligences. (p. 222)

Even so, Sternberg notes several strengths of MI theory. He endorses broadening the view of intelligence, although he wonders if Gardner has gone too far. Additionally, and perhaps more importantly, he comments that "MI theory forces us to rethink in a constructive way some of our notions about what should be taught and emphasized in our schools" (p. 222). Following this line of thought, Sternberg suggests that schooling may focus too narrowly on the academic subjects, to the detriment of music, art and dance.

Freedman, a critic of MI theory, notes that Gardner is "the buzz in very important circles. He has moved the debate on his terms. It is against him you argue now" (cited in Allis, 1999). As an example, Herrnstein and Murray (1994) use considerable print space arguing against the notion of multiple intelligences in *The Bell Curve* (pp. 17-24). Their book focuses upon statistical evidence to support *g*, and Gardner is selected to represent an opposing view to the authors' conception of intelligence.

Advocates of MI theory in classrooms focus upon the theory in practice, and the outcomes of MI theory implementation. Kornhaber's (1999) SUMIT (Schools Using Multiple Intelligences Theory) study describes 41 schools that systematically implement MI theory. Bellanca (1998) suggests that the use of MI theory improves instructional practice, including the development of "a greater repertoire of [teaching] methods" (p. 659). Campbell and Campbell (1999) point to six schools in the United States that have significantly boosted their achievement results after implementing teaching practices based upon MI theory. Other writers speak of increased motivation and greater engagement in student learning (Hoerr, 1997; Fogarty, 1998b). In spite of the seeming

buzz over multiple intelligences, the applications are scattered; most teachers have not incorporated MI theory in their teaching practice.

Numerous reasons for maintaining the status quo exist, some of which align with the discourse on "resistance to change," found in the educational change and reform literature (see e.g. Finckelstein, 1997; Fullan, 1991; Hanson, 1996; Haughey & Rowley, 1991; Owens, 1998; Nelson & Quick, 1997; Sergiovanni, 1995, 1996). Another reason, presented by Kuhn (1970), is that few people embrace a new idea in the beginning of a paradigm shift, and perhaps only for "personal and inarticulate aesthetic considerations" (p. 158).

MI theory nonetheless works well for the purposes of this study since Gardner has written extensively on the theory and has provided suggestion for its use, information about the use of the theory in diverse settings is accessible, and the teachers in my case study are located within geographical proximity.

Mediation of Theory

While a theory exists in an abstract world, typically in idealized situations, the application of theory requires the practitioner to interpret the theory and to reconcile the differences between the ideal setting of the theory and the real-world situation in which the theory is applied. In the case of MI theory, a problem occurs in reconciling the theory's generalized statement about intelligence with the intelligence of the actual students in a given classroom. How will the theory fit the realities of practice? In order to bridge this gap between theory and practice, the teacher must interpret and apply the theory within a particular context. This process, which I shall call mediation, is the focus of my study. The word mediation was chosen for several reasons: (a) it encompasses a

process that is complex and often fraught with difficulty, (b) it suggests a resolution of differences through an intermediary agent, and (c) it implies a diverse context that affects the outcome of the mediation.

A mediator might be thought of as occupying "an intermediate or middle position, usually to form a link or a transitional stage between one thing or another" (Oxford English Dictionary, 1971). The Houghton Mifflin Canadian dictionary similarly defines mediation as "a vehicle for bringing about (a result) or for conveying (information) to others" (Morris, 1980). Feuerstein (cited in Ben-Hur, 1998) argues that "the 'mediators' of our early learning interpose themselves between us and the world to help make our experiences meaningful" (p. 662). Feuerstein notes that in their purposeful attempts to change our concepts, mediators advance the development of our cognitive systems. In my study, I shall focus upon the mediation that occurs between MI theory and the students. The teacher acts as a bridge, or mediator, between the abstract notion of the theory and the reality consisting of the students in the classroom.

The literature acknowledges a tension between the ideal situation of the abstract theory and the concrete environment in which the theory is implemented. Gardner (1998) likens this tension to navigating "between opposing forces: the attraction of theory versus the realities of practice" (p. 138). Norris and Kvernbekk (1997) refer to problems in connecting abstract and concrete systems and note that "all theory application involves normative considerations about whether and how to apply the given theory" (p. 981). Schwab (1969) suggests that theory must be mediated by "arts which devise ways of taking account of the many aspects of the real thing which the theory does not take into account" (p. 12).

The application of educational theory encompasses numerous considerations. These include an examination of contextual as well as normative questions. For example, a person interested in applying a particular theory must evaluate whether the theory can be made to fit the realities of practice (Can it be applied?), and whether the theory is suitable for the intended setting (Is the theory about this situation? Will it benefit the recipients?). In the context of the classroom, the teacher must interpret and apply the chosen theory in a highly complex environment involving students, parents, administrators, school and district policies, government regulations, resource materials, teacher education programs, professional development activities, traditions, teachers' existing professional knowledge, belief systems, and personal interests. While this list is not exhaustive, it does call attention to the fluid environment in which educational theory applications are situated.

Research Questions

The proposed research is guided by the general question: How does mediation of MI theory inform the nature of theory application?

During the mediation process, the teacher reflects upon what is known and what to do. Questions of why the theory might be useful in the classroom evolve into questions of how the theory can be applied in instructional practice. Phases of the research will focus simultaneously on three interdependent issues of the mediation process: (I) Philosophical Phase, (II) Interpretive Phase, and (III) Practical Phase. The following specific questions will be addressed. In Phase I: How does the teacher's philosophy of education align with the theory's philosophical underpinnings? Why has the teacher adopted or agreed to try this theory? In Phase II: How have teacher education,

professional development activities and resource materials affected the interpretation of the theory? What decisions has the teacher made in creating a fit between the theory and the classroom context? How have school and district policies affected the interpretation? In Phase III: How has the teacher applied MI theory in practice and to what extent? How has support, or lack thereof, from stakeholders affected the implementation?

I shall situate the study in the literature that addresses the relationship between educational theory and practice and, more specifically, the use of knowledge (theory) to guide teaching (practice). This poorly understood relationship continues to fascinate scholars as they struggle with questions of theory application (e.g., Cochran-Smith & Lytle, 1993; Korthagen & Kessels, 1999; Lieberman, 1992a; Norris, 2000; Norris & Kvernbekk, 1997; Robinson, 1998; Schoenfeld, 1999; Schön, 1983).

Significance of Research

Theory can have strong impact on teaching behavior, yet there is an unfortunate chasm between theory and practice that may be caused by misunderstandings of the nature of theory application. The purpose of my research is to examine the complex processes involved in theory application in order to bring greater understanding to this area, and to probe how links between theory and practice can be strengthened.

While the literature offers numerous "how to use MI theory" suggestions and considers outcomes of MI theory application (e.g., Bellanca, 1998; Bucko, 1997; Campbell & Campbell, 1999; Fogarty, 1998a, 1998b; Hoerr, 1997; Latham, 1997), less attention has been placed upon what precedes these outcomes: the mediation of MI theory in classrooms. This phenomenon is noteworthy because the teacher holds an essential role in the mediation process, and because the teacher ultimately determines

what takes place in the classroom. The proposed study will examine the processes in which teachers engage as they implement a given theory, and thus augment knowledge of the nature of theory application.

Based upon an increased understanding of the mediation process, and the effect of context upon this process, my proposed research will initiate the development of a "theory of theory application." Scholarship in the area of applied educational theory is of interest for anyone who believes that practice should be informed by theory and who is concerned with how theories might fare in practice. The issues surrounding theory and practice comprise a major issue in education, and go to the heart of teacher education.

The proposed research is also significant because it addresses the phenomenon of using current brain research to inform teaching practice. According to Bucko (1997), "Brain-based learning may be the most important influence on the way we teach since the first school was founded" (p. 20). Wolfe (2001) notes that the more we understand the brain, the better we will be able to educate it. Although I could have chosen any educational theory to use for the purpose of my research, *understanding the nature of theory application*, one reason for selecting MI theory was because of its potential as a useful teaching tool. In light of current high school dropout rates, approximately 30% of students in Alberta do not complete high school within six years of entering grade nine (Alberta Learning, 2001), which closely mirror the Canadian rate, and in light of a persistent problem in adult illiteracy (Alberta Association of Adult Literacy, 1995), I view MI theory as a possible candidate theory for implementation in schools, and at the very least, as a catalyst for examining current practices.

Reasons for Undertaking This Research

An important reason for undertaking this research is my belief that teaching practice can be enhanced by theory. However, theory must be the teacher's tool, not the teacher's ruler. As a teacher, I often told my students: "This classroom is our laboratory and this is where we test ideas. Some will work and others will not. That's okay." I liked testing ideas with the students since I felt that they might enhance my practice and help the students learn more effectively. I gained ideas from various sources, some from the literature, others from colleagues. I did not feel that these ideas were binding upon my practice. Instead, I saw them as possible additions to my existing teaching repertoire.

Ideally, theory and practice work in tandem in a collaborative and interdependent relationship. Theory can give teachers new ideas; practice can inform theory. Both theory and practice draw upon the strengths of those involved in this cyclical relationship. Yet, it is doubtful that any one theory can offer a panacea for practice. It is more likely that a combination of theories acts as a framework for practice.

In selecting research methods for this study, it was crucial for me that the teachers in the case study and I established a trust-filled relationship in which we could learn from each other. Interestingly, the teachers and I have maintained the friendships that started during the data collection, resulting in various collaborative projects.

Schoenfeld (1999) notes that "much of what we do, individually and collectively, is shaped by our personal histories" (p. 4). In my case, growing up in a social democratic environment in Sweden shaped much of who I am and what I do today. Societal values made strong impressions, some of which include: equality, democracy, fairness, respect for all occupations, the need for everyone to be heard, and the importance of laborers'

opinions. While some of these values have a modest connection to my current work and research, notions of equality, democracy and fairness have undoubtedly influenced my beliefs in teaching and learning.

As a teacher, education consultant and mother of four children, I believe that each child has potential and gifts, "a peculiar bent of genius," that awaits development. I view school systems as arenas where students ought to discover their potential and where they ought to be presented with learning experiences that build upon this potential while developing valuable skills and knowledge. A broad educational objective could be seen as capitalizing upon each individual's potential and gifts with the goal of facilitating individual satisfaction in a democratic and prosperous society.

Although it would be easy to gain support for this rather vague statement, as can be seen in numerous educational policy documents (see e.g. Alberta Learning, 1997, 1999; Alberta Teachers' Association, Alberta Catholic School Trustees' Association, Alberta School Boards' Association, Association of School Business Officials of Alberta, and College of Alberta School Superintendents, 2000), there are several troublesome aspects to this objective in the current educational context, two of which are: (a) determining the extent of each student's potential and gifts, and (b) deciding upon the approaches to developing these strengths.

Because of my belief in developing each child's unique potential and gifts, I became interested in Gardner's theory. I was particularly intrigued by the "humane and generous set of values" (Feldman, 1998, p. 15) underpinning this theory. Rather than excluding children who do not present strengths in subject areas which are highly valued in the current educational system, typically those subjects with a strong focus on

linguistic and mathematical skills, MI theory promotes an inclusive approach that "elicits children's distinctive strengths" (Gardner, cited in Chen, Krevchesky, & Viens, 1998, p. 23).

MI theory tends to address the needs of the academic "underdog," and encourages recognition of strengths in those students who are "difficult" in the classroom. In the traditional model, only a select number of students are smart. In the MI model, everyone is smart. Possibly, this approach to education establishes a greater sense of fairness in the classroom. While this dissertation does not seek to address the rightness or wrongness of MI theory and whether it *should* be implemented in schools, the assumption is made that education that develops a broad range of potential and gifts is desirable.

A childhood stimulus for this study came from a great-aunt, a pioneer physician in the field of gynecology and obstetrics, who spoke to me often of the brain and her belief that we use only a fraction of its capacity. Lively discussions laid a foundation for a subsequent interest in "the brain" and the nature-nurture debate. Perhaps it is because of these early discussions that I attempted various teaching approaches to see whether particular educational theories would work in my classroom. One such attempt was the implementation of the Kodály singing method (Choksy, 1988), with a bias toward John Barron's (1993) interpretation of this method. Kodály and Barron maintain that *all* children can learn to sing in tune, if given appropriate learning experiences. I found this theory to be useful in teaching singing skills.

A final reason for undertaking the proposed research is that I have had the good fortune of having had many excellent teachers. My favorite teacher was Rolf Tengström, my grade 6 teacher. Although I did not realize it at the time, Rolf was a progressive

teacher who believed in students taking charge of their own learning, conducting original scientific experiments, singing with abandon, painting the ever-changing scenes of the coast-line, and learning how to collaborate in groups. These were innovative ideas in the mid-1960s in Kungshamn, a small fishing-town on the west coast of Sweden.

Our classroom was a stimulating learning environment filled with experiments such as the building of the Nile in a huge sandbox, complete with delta, blue water and real grass. The Nile project was not a prescribed class activity but the brain-child of a group of four talkative girls whom Rolf called the "coffee ladies" and whom he subsequently split up amongst the boys in order to maintain calm in the classroom. The Nile experiment taught us scientific principles such as hypothesis making. It developed "scientific persistence," when the first effort of containing water in the riverbed failed (try another method), and it allowed us to "mess around" and construct our own understanding from our experiences. Meanwhile, we learned a lot about reading, writing, and speaking in public because of all the work involved. We produced reports, created tests, marked tests, did oral presentations, and conducted research from written sources. It was enjoyable, it was engaging, and it connected learning to real life.

Rolf died before I could ask him about his teaching philosophy and his beliefs about children's learning. What I do know is that he involved elements of multiple intelligences à la Gardner in his teaching approach and that his students loved to come to school.

Chapter II

REVIEW OF THE LITERATURE

Overview

In this chapter, I review the literature to establish a foundation for the major issues addressed in my research. The following topics are addressed:

- theory practice relationships,
- nature of theory application,
- focus and scope of MI theory, and
- MI theory implementation efforts.

Theory Practice Relationships

Situating the study in the theory practice literature was not immediately apparent. I attempted to find readings in "applied educational theory" but found little relevant material. Similarly, "educational theory" did not provide the substance for which I was searching. I desired literature that highlights the tension between theory and practice, and more specifically, the challenges teachers encounter as they apply theories in their classrooms. The literature on the theory practice relationship provides the closest match to my proposed research and has the added benefit of having attracted scholarly interest over time.

The theory practice literature exposes two issues of importance for my study: (a) the division between people (theorists and practitioners), and (b) the division between theory (abstract generalizations pertaining to ideal settings) and practice (specific phenomena pertaining to real-life settings). Although my study focuses primarily on the

latter issue, I shall juxtapose selected observations on the division between theorists and practitioners since they are inextricably linked to theory and practice.

The literature reveals some of the tension between theorists and practitioners in its choice of terminology. Should one speak of theorists and practitioners as two distinct groups of people? Are there "university-based researchers" and "school-based researchers"? Do both categories have equal status? Are teachers "invited" into the research collaboration as partners? Are they researchers in their own right? Are they "knowledge-creators," and as such theorists? Are teachers merely knowledge consumers? I will address some of these questions in chapter three because they have a bearing on the methodology for the field study component of my research. In addition, I will respond to these questions in the analysis and discussion of the data in chapter six.

Division between theorists and practitioners. The discourse in this section highlights elements of the tension between practitioners and theorists and illustrates the chasm between the two camps. Theory and practice are portrayed as being mutually exclusive, with minimal collaboration between theorists and practitioners.

In a major book on theory and practice, Schön (1983) addresses what he regards as the divisive relationship between theorists and practitioners from the perspective of a profession's "knowledge base" (theory) and its practice. He suggests that an early division between theory and practice can be found in training programs for diverse professions where theoretical knowledge precedes practical application (see also Korthagen & Kessels, 1999). More forcefully, however, this division can be found in traditional values and belief-systems, specifically in the model which maintains that theory is created by university-based scholars but used by professionals and technicians (Cochran-Smith &

Lytle, 1990). In this context, a clear separation exists between creators of knowledge and those who apply knowledge. In Schön's words,

> Those who create new theory were thought to be higher in status than those who apply it, and the schools of "higher learning" were thought to be superior to the "lower." Thus were planted the seeds of the Positivist curriculum, typical of professional schools in American universities, and the roots of the now-familiar split between research and practice. (1983, p. 37)

Schön notes that this structure is flawed because practice is necessarily filled with "complexity, uncertainty, instability, uniqueness, and value-conflict" (1983, p. 39). Simply applying a theory, as if applying a Band-Aid, is not going to work in a multifaceted setting. He likens this setting to

> a swampy lowland where situations are confusing "messes" incapable of technical solutions. The difficulty is that the problems of the high ground, however great their technical interest, are often relatively unimportant to clients or to the larger society, while in the swamp are the problems of the greatest human concern. (1983, p. 42)

The school setting fits the description of the swampy lowland. Teachers continually encounter confusing messes and find no clear solutions in their personal repertoire of experiences. Is there a solution for this predicament? Schön offers a reflective approach, a kind of "reflection-in-action," to deal with the challenges of the swamp.

In their book, *Narrative inquiry*, Clandinin and Connelly (2000) note that "formalists begin inquiry in theory, whereas narrative inquirers begin with experience as expressed in lived and told stories" (p. 40). The authors observe a tension between

formalistic and narrative inquiry which gives rise to different behaviors due to opposing paradigms. Formalists look to theories to help them understand the world; narrative inquirers look to their own lived experiences to help them create meaning:

> The contribution of a narrative inquiry is more often intended to be the creation of a new sense of meaning and significance with respect to the research topic than it is to yield a set of knowledge claims that might incrementally add to knowledge in the field. (p. 42)

Although it may be argued whether there is a difference between creating "a new sense of meaning" and creating "a set of knowledge claims," the approach to gaining this understanding or knowledge differs. The authors provide an example from graduate student work, in which the student receives advice depending upon the views held by various committee members: "Go to the library. What experiences have you had with this? Read Gadamer. Go to a school." (p. 41). Of note in this example is that the committee members provide advice depending upon their preferred paradigms, and the ways in which they create meaning. Clandinin and Connelly uphold teachers' lived experiences, and the reflection upon these experiences, as the source of professional knowledge.

Scott (2000) questions the wisdom of having theorists assist practitioners. While the theorist necessarily deals in generalities, the practitioner faces the particulars of the classroom:

> The real issue we need to confront is whether it is possible for an outsider, i.e. non-practitioner, to develop theoretical precepts about practice which are binding

> on those practitioners because they constitute a superior form of knowledge to the knowledge developed by the practitioner working *in situ*. (p. 55)

Scott cautions against government interventions, or any top-down approach, and believes that teachers should identify areas of need and choose the best course of action. This approach, he argues, "allows the teacher to engage in the process of knowledge creation" (p. 59). In Scott's opinion, outside theory is suspect and of minimal use in the classroom. The solution, offered by Scott, is for the practitioner to conduct an error analysis of his or her practice, followed by appropriate professional development, chosen by the practitioner.

In my study, it is important to note that an outside person created MI theory. Before encountering this theory, the teachers in the case study had not pursued research on human intelligence and its possible implications for teaching practice. To them it was a non-issue. When they came across MI theory, they were less interested in the origins of the theory than the potential for use in their classrooms. The teachers' primary interest was to find solutions for meeting the needs of a diverse student population, whether these solutions came from an outsider, a colleague, or their own professional knowledge. Let us now turn to research that portrays a more optimistic view on the relationship between theorists and practitioners.

Moving toward collaboration. Lieberman (1992b) found a cooperative problem-solving approach conducive to bridging the gap between theorists and practitioners. "If we wanted real reform, teachers would have to be directly involved" (p. 6). Lieberman suggests using an action research group in connecting research and practice, and in

creating a "community that expands our relationships with one another and, in so doing, our knowledge and our effectiveness" (p. 11).

Cochran-Smith and Lytle (1993) argue that knowledge is principally "'outside-in'–generated at the university and then used in schools" (p. xi), however, they elevate "inside/outside" knowledge. This latter kind of knowledge is based upon a conception of knowledge as reciprocal–developed in universities *and* in schools. Both institutions are essential to the furthering of scholarship, and on equal footing. Similar to Scott (2000), Cochran-Smith and Lytle (1990) maintain: "The questions teachers ask about theory and practice ought to be the starting points for classroom inquiry" (pp. 4-5). One might ask whether teachers have the exclusive right to pose these questions, or whether they can be posed by either group. This problem is partially clarified as Cochran-Smith and Lytle (1993) make a distinction between studies of teachers as "technicians" or "objects of researchers' investigations" (teachers applying research findings–an outside-in approach) and studies with teachers as "researchers" (teachers posing and exploring problems identified by themselves–an inside/outside approach) (see also Cochran-Smith & Lytle, 1992). Of note is that teachers in the latter paradigm have become empowered as theory-makers. They are no longer mere recipients of research findings but contributors of knowledge. According to Cochran-Smith and Lytle (1993), "The most fundamental issue is whether teacher research will remain on the fringe of educational reform or whether it will be at the forefront" (p. 103).

In response to the thorny issue of who should be at the forefront, Norris (2000) argues that both school-based research and university-based research are sources of expertise necessary for maximal contributions to knowledge. Thus, "the agenda of

identifying elements of knowledge to serve as foundations for all other knowledge is rife with problems. So is the attempt to distinguish sharply the practical from the theoretical, doing from knowing, and to set one above the other" (p. 176). Moreover, Norris and Kvernbekk (1997) suggest that teachers' full participation in the research community can be facilitated through a learning community wherein researchers and teachers collaboratively reflect upon important issues. "In this way, teachers retrieve some intellectual responsibility by being full participants in the production of the knowledge base" (p. 978).

However, the theory practice relationship turns not only on the reconciliation between the people – the theorists and practitioners. The question of relevance figures in the literature. Numerous voices question the benefit of using an "outside" theory in a highly complex, "inside" classroom environment. Can an outsider help an insider? Let us turn to some researchers who believe that there is room for collaboration.

A synergistic relationship. Following the continuum of theory practice relationships, we encounter views that promote the strengthening of links between the camps. Norris and Kvernbekk (1997) prefer an amalgamation of theory and practice:

> Even if there were perfect theories, by whatever standard of perfection one might measure them, there remains a crucial and irreducible role in applying theories for the practitioner knowledgeable of the application situation. There is no question of which is more important or more central, theoretical or practical knowledge. Both are equally important, and both are necessary. (p. 1000)

Schoenfeld (1999) argues that "it is possible and desirable to think of research and applications in education as synergistic enterprises rather than as points at opposite ends

of a spectrum, or as discrete phases or a 'research leads to applications' model" (p. 14). Any synergistic enterprise necessarily includes a collaborative relationship between the participants. One might speculate that synergy involves respect, and that in this type of relationship, there is give and take; one learns from the other and vice versa. Gardner (1995) observes that "practice is enriched by theory, even as theory is transformed in the light of the fruits and frustrations of practice" (p. 209). Interestingly, Harvard Graduate School of Education is involved in numerous national and international research projects that feature MI theory, and that are based upon collaboration between the university and school districts, or individual schools.

Although a happy union of synergism seems perfectly reasonable on paper, the creation of such an enterprise faces considerable opposition in the form of tradition and existing perceptions. Reflecting upon theory practice relationships that divide theorists and practitioners into two separate bodies, and teacher training programs that detach theory from practice, I shall examine some of the arguments that hinder synergy. In a utopian world, every theorist ought to engage in practice and every practitioner ought to create theory. In a less than ideal world, understanding the issues that surround the theory practice relationship might lead to possible solutions.

Theory versus practice. Is it critical to put a value on theory versus practice? It all depends. In *The Great Didactic* of 1657, Comenius (in Cremin, 1967) espouses practice as superior to theory. "Artisans do not detain their apprentices with theories, but set them to do practical work at an early stage; thus they learn to forge by forging, to carve by carving, to paint by painting, and to dance by dancing" (p. 105). Although it can be debated whether teaching is an apprenticeship, teacher education at least partially

follows an apprentice-type model. School-based practicum components comprise student observations of veteran teachers, and mentoring and coaching of pre-service teachers by experienced practitioners. Comenius' uncompromising view is shared by Carr (1992) who insists that teaching is primarily practical in nature. This position rejects theoretical knowledge on the basis that it hinders, rather than helps, the development of teacher expertise. In this "either-or" argument, theory and practice are mutually exclusive.

The case against using theory in the classroom. Various arguments have been raised that object to theory application in classrooms. Theory, on one hand, is criticized for not supplying practical, ready-to-use solutions to specific problems. Teachers, on the other hand, are at times perceived as having exclusive knowledge of classrooms (Scott, 2000) and thus, the only ones who can select and implement appropriate solutions. Other views contend that teaching is an art, and as such, above the cold and analytical world of scientific knowledge. Following this line of thought is the notion that people are born teachers; training and theoretical knowledge are therefore of little assistance to this inherent, and rather mystical, calling.

Carr (1992) observes that "education and teaching *are*, to be sure, matters of practice more than theory … education as a practical activity is in a very real and crucial sense *opposed* to theory" (p. 242). Carr argues that educational theorizing is a "kind of quasi-scientific enterprise" (p. 246) that fails to deliver the results for practice and cannot "provide much in the way of direct practical solutions without considerable critical and evaluative reinterpretations and adaptation to particular circumstances" (p. 246). Carr concludes that the use of theory in classrooms is futile and dispenses with educational theories because they cannot provide immediate and direct solutions. This view is shared

by Pekarek, Krockover, and Shepardson (1996) who note: "Formal research findings are too generalized for classroom teachers to use" (p. 111).

Schön (1983) takes a different slant when he argues that teaching belongs to the minor professions and as such, does not have scientific professional knowledge. Further, theory can only be used "when the ends are fixed and clear" (p. 41) and when precise treatments can be applied to precise cases. Schön refers to theory application as technical rationality, only to be used in occupations that draw upon the hard sciences. Because the problems in teaching are ambiguous and diverse – the swamp contains messes incapable of technical solutions – theory is of little use to the profession. Schön concludes: "Practitioners and researchers tend increasingly to live in different worlds, pursue different enterprises, and have little to say to one another. Teachers have gained relatively little from cognitive psychology" (p. 308).

A comment that I frequently hear in my consulting work is that teachers cannot see the link between theory and practice. Newly graduated teachers note that pre-service education does not prepare them adequately for the teaching profession because Bachelor of Education programs are too theoretical and irrelevant to the "real work" in classrooms. In my experience, this view is to be expected. Teachers who enter the profession often find initial teaching to be an exercise in survival rather than the interpretation and application of theory.

Finding alternative solutions. In the accounts that reflect views opposed to using theory in classroom, I find it curious that substantial alternatives are lacking. In the criticism of theory, it is unclear from which sources teachers are expected to gain new ideas for enhanced practice. Possibly, because it is oftentimes easier to criticize than to

offer viable alternatives, solutions in the literature are scant. Although action research and collaboration are clearly beneficial to the development of professional knowledge, one cannot assume that these types of activities occur in the busy school world. On the contrary, teachers often experience isolation in their classrooms and encounter numerous obstacles that prevent them from establishing productive relationships.

In response to concerns of isolation and lack of collaboration, a focus of my work as consultant is to initiate collaboration between teachers, which, for example, may take the form of a Best Practices Institute. In this grassroots professional development, teachers visit classrooms to observe colleagues in action, followed by interactive workshops that draw upon current research. The institute model is designed to break down "barriers between classrooms," and to provide teachers with ideas from the literature. Several reasons exist for offering the institute: (a) collaboration cannot be taken for granted in the teaching profession, and (b) increasingly, at least in the Alberta context, there is a desire from the school district level to align practice with research findings.

The latter goal does not follow a linear route because of expectations that research needs to be delivered in a "user-friendly" mode. Consider the explicit instructions that a colleague and I received before making a presentation on MI theory in northern Alberta (November 2002): "Make sure that the teachers come away with materials that they can use the next day." In this school district, theory was used as a springboard for developing unit and lesson plans – one way of combining theory and practice.

The notion that teachers ought to learn primarily from experience, trial-and-error style, without input from research, or without drawing upon theory, appears highly

ineffective. Let us continue by examining the nature of theories. Perhaps the problem with theory application is that we do not understand how to use them. Perhaps we have lived under the illusion that theory is to be "applied" Band-Aid style, without thought or reflection, and that under this false perception, we have failed to realize the intricate workings of mediating between the abstraction of theory and the reality of the classroom.

Nature of theories. Schwab (1969) argues that "there is not, and will not be in the foreseeable future, one theory of this complex whole [society, classrooms] which is other than a collection of unusable generalities" (p. 9). However, theories are by necessity general because they ignore particularities. In addition, they are "incomplete" because they leave out phenomena; certain attributes of the phenomenon are included while others are ignored. In the school setting, no class is the same as the next. Students differ in chemistry, in ability, in socioeconomic status, in culture, in tradition, and in past experiences.

Schwab (1969) suggests:

> What remains as a viable alternative is the unsystematic, uneasy, pragmatic, and uncertain unions and connections which can be effected in an eclectic. And I must add, anticipating our discussion of the practical, that *changing* connections and *differing* orderings at different times of these separate theories, will characterize a sound eclectic. (p. 10)

According to Schwab (1969), the significance of theory is that it formulates the regularities of things and events. "It abstracts a general or ideal case. It leaves behind the nonuniformities, the particularities, which characterize each concrete instance of the facts

subsumed" (p. 11). To remedy this omission, Schwab suggests that theory application requires "arts which bring a theory to its application" (p. 12).

Kvernbekk (1994) notes that "theories are constructed for a variety of reasons; among them description, prediction, explanation and modifying the world. Thus, drawing on theory to understand a given problematic situation is also to *apply* theory" (p. 115). Thus, a theory of human intelligence could be used to describe, predict, explain, modify and understand students' thinking, the very thing that we attempt to develop in education.

Norris and Kvernbekk (1997) propose that educational theories by nature cannot take into account the many variables that exist in a classroom situation. Consequently, "education theories are not recipes, but abstract systems that must be mediated in application by auxiliary hypotheses falling outside the theories and that intercede between theories and phenomena" (p. 978). Every theory necessarily excludes certain aspects of the phenomena and therefore requires a mediation process.

Dewey acknowledges that his theory of progressive education is general in nature, "and like all generalities subject to varied and ambiguous interpretations. They indicate the starting point of the contribution that progressive schools may make to the theory or science of education, but only the starting point" (Dewey, 1928/1964, p. 171). Similarly, he suggests that educational theories "give intellectual guidance to the practical operation of schools" (p. 171). It should be noted that "intellectual guidance" does not imply a rigid adherence to educational programs but provides a framework for instructional practices. Gardner (1983/1993a) similarly notes that psychology does not dictate education but "merely helps one understand the conditions under which education takes place" (p. xix).

Nature of Theory Application

At first blush, theory application appears deceptively simple: "Here is a theory; use it!" This unsophisticated perception implies that as part of a theory is a prescription for its application. Yet, upon further investigation, the applications of a theory are as varied as there are people using it. Differences in interpretation cause a multiplicity of applications. In the next two sections, I review opposing views on theory application: (a) a technical approach, and (b) a mediated approach.

Precise theory application. The approach mentioned above – Here is a theory; use it! – aligns with what I call "precise theory application." This model requires clearly spelled out step-by-step actions to reach an intended goal. In education, similarities exist between precise theory application and the use of methods. The intent of a method is to ensure that teachers follow a prescribed program as closely as possibly in order to attain a desired outcome. Examples of educational methods are found in the Balanced Literacy program, or in the Suzuki method (see e.g. Suzuki, 1981, 1982) for playing strings, piano or flute. These methods clearly lay out the steps to follow. "On day 1, do procedure A," "on day 2, do procedure B," and so forth. While there is necessarily some leeway in the application of methods, teachers are expected to follow the prescribed procedures as closely as possible in order to achieve the desired end-result. For example, the Suzuki method designates specific musical selections for teachers to use and has strict guidelines for the role of parents, and in Basic Literacy, prescribed books and specific timelines for implementation of particular concepts are essential components of the program.

Various writers refer to precise theory application as "technical" in nature. Carr (1992), for example, argues that teachers in this model become technicians who engage

in "a more or less straightforward and value-free technical exercise" (p. 242). Carr argues that theory application can be likened to performing routine functions without critical and reflective practice, "the uncritical adoption of someone else's half-baked idea of how to teach" (p. 247). Application of theory thus reduces teachers to robotic behavior that is characterized by "simple, final and conclusive answers to complex questions … trite solutions … straightforward and unequivocal answers" (p. 248). In this mechanistic approach, there is no room for interpretation or values and beliefs. The teacher simply takes the theory and "applies" it.

Schön's description of technical rationality also fits the precise model of theory application. In the technical rationality paradigm, practitioners of the major professions (e.g., medicine, dentistry, engineering, and agronomy) are problem solvers who apply general principles, standardized knowledge, to concrete problems (1983, p. 24). "An occupation moves from craft to profession as it approximates this model of technical problem solving, and it becomes science based as its techniques are grounded in the theories of basic and applied research" (p. 169).

In contrast, the minor professions, of which teaching is one, have a comparatively scant scientific knowledge base. Schön (1983) suggests that they engage in practice that reflects "artistry in situations of uniqueness and uncertainty" (p. 165). Moreover, even if a scientific knowledge base were to exist, it could not be used in a swamp-like environment since the practitioner cannot "apply" knowledge (a technical approach) *and* engage in reflection-in-action. In Schön's view, the two are mutually exclusive.

Kvernbekk (1994) takes a stand against the technical rationality model. She argues that this approach is

> hierarchical and derivative and allows space neither for the competence possessed by professional practitioners nor for the variability of practice. The model assumes a one-step relation between theory and phenomenon (practice) and prescriptions for practice can be made by deducing directly applicable rules of action. The theory determines its own application and no situational appraisal is called for. (p. 99)

The question arises: Is theory application ever a straightforward, technical activity, even in the so-called major professions? If it is, why do significant reminders exist for professionals to be judicious, to give thought in practice: "First, do no harm" (medicine), or the wearing of the iron ring (engineering). It is hard to fathom that physicians or engineers simply apply technical solutions to standard cases in an algorithmic fashion. Theory application surely depends upon the context of the situation. Let us proceed with a review of non-precise theory application.

Non-precise theory application. The emergence of a new educational theory, and its implications for educational practice can cause multiple applications of the same theory, as exemplified by the response to Dewey's theory of "progressive education." Dewey, a foremost educational theorist of the twentieth century, provides the following suggestions for teaching practice:

> The pupil should be looked upon as willful, purposive, curious, active. The teacher should be considered a guide who should help the pupil to achieve his own purposes. The subject matter of instruction should be completely redefined in terms of those facts, ideas, and objects that are helpful in fulfilling pupil purposes. (cited in Archambault, 1974, p. xxiv)

While the debate over "child-centered" versus "teacher-centered" education has continued unabated over the past century, Dewey's notion of progressive education prompted educators to examine their existing practice and, in many cases, to attempt using his theory in their own settings. In Canada, progressive education took the form of "Enterprise projects," the introduction of "learning centers," and instructional practice that gave students greater say in their learning. These change efforts can be viewed as educators mediating Dewey's theory (the abstract) in their classrooms (the reality). The diverse ways in which practitioners interpreted and applied Dewey's notions of pupils and teachers serve as a widespread example of non-precise theory application.

Gardner (1995) likewise offers the following thoughts on classroom implementation: "MI theory is in no way an educational prescription. … Educators are in the best position to determine the uses to which MI theory can and should be put" (p. 206). Gardner suggests that MI implementation should focus upon: (a) the cultivation of desired capabilities, (b) approaching a concept, subject matter, or discipline in a variety of ways, and (c) the personalization of education (pp. 207-208).

The notion of teaching every subject area using all intelligences is not encouraged. Gardner (1993b) speaks of "an education framed in the 'spirit' of multiple intelligences" (p. 66) rather than adhering to a method or a prescribed program. Again, we see an endorsement of non-precise theory application.

Interestingly, Schön (1983) approves of the use of "overarching" theories, which can be used "to make sense of phenomena" (p. 270). This type of overarching theory

> does not give a rule that can be applied to predict or control a particular event, but it supplies language from which to construct particular descriptions and themes

> from which to develop particular interpretations. Psychoanalytic theory functions in this way for the Supervisor [a psychotherapist who mentors a resident], and process-flow modeling does so for Wilson [a systems engineer who teaches children in an underdeveloped country]. In both cases, the practitioner does not consider that he has formed a satisfactory account of phenomena in any practice situation *until* he has framed it in terms of his overarching theory. (p. 274)

The quote above clearly puts the practitioner in the driver's seat. The theory no longer provides rules, as in the technical rationality model, but assists the user in creating meaning of the world. Thus, the theory becomes an "assistant" rather than a "ruler." It serves as a tool rather than a prescription.

Because there are numerous ways of applying a given theory, teachers have a measure of freedom in choosing how to interpret and apply a theory. In the Orff approach (see e.g. Frazee, 1987), an example of a music education theory, teachers are free to choose which songs to use when teaching musical skills and concepts. Thus, mediating the Orff music approach greatly depends upon the context and the teachers' personal preferences of song literature. The selection of appropriate songs is an integral part of connecting the abstraction of the Orff approach with the reality of the classroom.

Norris and Kvernbekk (1997) argue that the mediation between theories and concrete systems can be viewed as a connection "composed of auxiliary hypotheses that specify the influence on the concrete systems of factors not specified by the theory" (p. 981). In the example above, the Orff approach provides the *pedagogy* of music education but gives discretionary powers to the teacher in the choice of song materials (Frazee, 1987). Thus, the selection of songs can be viewed as part of the auxiliary hypotheses. If

one were to examine the mediation between Orff theory and students in the elementary classrooms, the selection of songs would be a primary consideration in the mediation process since it reveals how teachers apply the theory.

> According to Schwab (1969), the mediation process involves
>
> arts which bring a theory to its application: First, arts which identify the disparities between real thing and theoretic representation; second, arts which modify the theory in the course of its application, in the light of the discrepancies; and, third, arts which devise ways of taking account of the many aspects of the real thing which the theory does not take into account. (p. 12)

Again, drawing from personal experiences as a music teacher, mediating the Orff approach in Alberta elementary classrooms entails an assessment of the following components, which the Orff framework (theory) does not take into account: students' abilities, physical setup of the classroom, access to Orff instruments, "intrinsic" musical value of song selections, usefulness in teaching desirable musical concepts and skills, alignment with the Alberta Program of Studies (provincial curriculum), and cultural context.

The issue at stake in my study is that there are particulars that the theory cannot take into account because of its general nature. Undertaking research that incorporates careful observation of theory application in elementary classrooms gives me the opportunity to study that which I have engaged in as a practitioner, albeit without reflecting upon my practice as "mediating theory." As I move from the familiar, mediating the Orff approach, into the unfamiliar, mediating MI theory, the insights gained from the literature and the data will serve as a basis for my discussion on the

nature of theory application. Let us now proceed by examining the characteristics of MI theory.

Focus and scope of MI Theory

In this section, I shall review major assumptions of Gardner's MI theory, define terminology, examine the eight intelligences, review criteria used in selecting the intelligences, and discuss the transition from developmental psychology theory to educational theory. In my exposition of MI theory, I shall use Gardner's writings as the primary source of information. I have deliberately chosen to let Gardner's voice dominate the discourse since translators of MI theory have interpreted it in various ways, particularly in their use of terminology. In my opinion, the translators do not always capture the essence of the theory in their attempts to provide a user-friendly solution for practitioners (see e.g., Silver, Strong & Perini, 2000). Further, since Gardner's understanding of the theory has evolved over time, I shall use both his early and later writings in an attempt to provide a reasonably complete disclosure within the constraints of this study. As Gardner notes, "MI theory is based wholly on empirical evidence and can be revised on the basis of new empirical findings" (1995, p. 203).

Assumptions of MI theory. MI theory posits the *pluralism* and *contextualization* of human intelligence (Gardner, 1983/1993a). In the traditional view, a general intelligence exists that can be measured through short-answer intelligence tests drawing primarily on logical and linguistic abilities. Gardner challenged this view of intelligence in one of his first publications on multiple intelligences, *Frames of Mind: The Theory of Multiple Intelligences* (1983/1993a). This book is commonly viewed as the foundational source of the theory and is frequently referred to in MI-related literature.

The intent of MI theory is to "broaden conceptions of intelligence to include not only the results of paper-and-pencil tests but also knowledge of the human brain and sensitivity to the diversity of human cultures" (Gardner, 1983/1993a, p. ix). Initially framed in the context of developmental psychology, Gardner based MI theory upon "neurological, evolutionary, and cross-cultural evidence" (p. xii). The theory is largely "descriptive" (p. xxi) in nature, and does not focus on explanations of processes and operations of intelligence.

Gardner (1983/1993a) defined intelligence as "the ability to solve problems, or to create products, that are valued within one or more cultural settings" (p. x). In addition, he noted that intelligence "must also entail the potential for *finding or creating problems*" (1983/1993a, p. 61). Thus, human intelligence is no longer confined to logical and linguistic abilities but includes numerous skills that contribute to society, the *pluralism* of intelligence. The pluralism of intelligence is the focal phenomenon of the theory, the point on which MI theory turns. According to this view, a principal violinist of a symphony or a successful concrete contractor are viewed as intelligent regardless of their academic achievement scores. In Gardner's (1983/1993a) words,

> In my view, it is fine to call music or spatial ability a talent, so long as one calls language or logic a talent as well. But I balk at the unwarranted assumption that certain human abilities can be arbitrarily singled out as qualifying as intelligence while others cannot. (p. xx)

Citing James Traub, a journalist and a Gardner critic, Allis (1999) says, "Gardner is, at bottom, a moral philosopher; he wants to change the way we measure human worth" (p. B4). An example of measuring human worth can be found in the way school systems

reward scholastic achievement, typically in linguistic and mathematical areas. Consider the Alberta Rutherford high school scholarships where honors students get $2500 toward future education. A brilliant auto mechanics student or music student who does not achieve the required percentages in selected subjects gets no financial support toward future education. Moreover, while a number of high school dropouts achieve a high level of success (see e.g., Ogle's story about Al Owen in the *Edmonton Journal*, 1999), numerous dropout stories have unhappy endings.

Whereas the traditional view of intelligence is that there is context-free, general intelligence *g* that can be measured by IQ tests, Gardner (1983/1993a) maintains that a person's intelligence "inheres as much in the artifacts and individuals that surround one as in one's own skull" (p. xiii). Gardner notes that "an *intelligence* is a biological and psychological potential; that potential is capable of being realized to a greater or lesser extent as a consequence of the experiential, cultural, and motivational factors that affect a person" (1995, p. 202). Instead of focusing upon the heritability of intelligence, MI underscores genetic/environmental interactions. Thus, the context in which an individual resides has a significant bearing upon the development of an individual's intelligences, the *contextualization* of intelligence. For example, when a society spends considerable resources developing a particular intelligence, as in the Suzuki music model in Japan, "the entire society [becomes] quite intelligent in that respect" (1983/1993a, p. xxii).

In the opening paragraph to this section, I note that the theory has evolved over time as Gardner has obtained increased knowledge. For example, as field experiments brought additional data, the notion of measuring "raw" intelligences in seven areas gave way to the notion that "intelligences are always expressed in the context of specific tasks,

domains, and disciplines. There is no 'pure' spatial intelligence; instead there is spatial intelligence as expressed in a child's puzzle solutions, route finding, block building, or basketball passing" (Gardner, 1983/1993a, p. xvi). Furthermore, in 1983, Gardner started out with seven intelligences (linguistic, mathematical, spatial, musical, bodily-kinesthetic, interpersonal and intrapersonal). In 1995, Gardner added the naturalist intelligence, and recently, there has been some indication that a ninth intelligence – existential – is forthcoming (Gardner, 1999a).

Definition of terminology. Another advancement of MI theory, according to Gardner (1983/1993a), is the refinement of taxonomy, specifically "the distinction between *intelligences, domains*, and *fields*. In the original formulation, these distinctions were not properly drawn, leading to confusion among readers and, not infrequently, within my own thinking" (p. xvi). In 1993, Gardner defined them thus: *Intelligences* are "human intellectual proclivities, that are part of our birthright. These intelligences can be thought of in neurobiological terms" (p. xvi). *Domains* are "disciplines, crafts, and other pursuits in which one can become enculturated and then be assessed in terms of the level of competence one has attained" (p. xvi). "Physics, cooking, chess, constitutional law, and rap music are all domains in contemporary Western culture" (1999a, pp. 82-83). *Fields* are "the people, institutions, award mechanisms, and so forth that render judgments about the qualities of individual performances" (1983/1993a, p. xvii).

Eight intelligences. I again draw upon descriptions used in *Frames of Mind: The Theory of Multiple Intelligences* (1983/1993a) and attempt to capture the intelligences through the use of Gardner's voice. The translators' descriptions are concise and tidy but place less importance on *understanding* the intelligences. This is particularly noticeable

in the musical intelligence where I suspect that some of the translators have minimal knowledge of musical skills and concepts. The order of intelligences in this section has been taken from *Frames of Mind: The Theory of Multiple Intelligences* and does not indicate order of importance.

1. *Linguistic intelligence* is characterized by the ability to skillfully use words. Gardner suggests that poets exemplify linguistic intelligence in their sensitivity to semantics, "the shades of meanings of a word" (p. 75), and phonology, "the sounds of words and their musical interactions upon one another" (p. 76). He notes that poets master syntax and understand the pragmatic functions of language. "Fascination with language, technical facility with words, rather than the desire to express ideas, are hallmarks of the future poet" (pp. 76-77). Gardner offers Spender's struggle with phrases (and the final version below) as an example,

   > There are some days the happy ocean lies
   > Like an unfingered harp, below the land.
   >
   > Afternoon gilds all the silent wires
   > Into a burning music of the eyes. (cited in Gardner, 1983/1993a, p. 75)

   Additional characteristics of linguistic intelligence are: (a) "the rhetorical aspect of language–the ability to convince others of a course of action" (p. 78); (b) the mnemonic potential of language–the capacity to use this tool to help one remember information" (p. 78); (c) "its role in explanation" (p. 78); and, (d) "the potential of language to explain its own activities–the ability to reflect upon language, to engage in 'metalinguistic' analysis" (p. 78).

2. *Musical intelligence* can be found in composers and performers, but perhaps more surprisingly, in a greater number of ordinary individuals than what is currently

recognized in the Western world. The context in which one lives plays a significant role in developing musical intelligence. Thus, "musical achievement is not strictly a reflection of inborn ability but is susceptible to cultural stimulation and training" (p. 112). Music education in Japan, Hungary, Russia, and Africa serve as good examples of this phenomenon. While the poet is used as an exemplar for linguistic intelligence, Gardner uses the composer to illuminate highly developed musical intelligence. The composer continuously monitors and reworks "tones, rhythms, and larger musical patterns" (p. 101) that exist in, or near the surface of, the consciousness. Words are rarely involved in this process; instead, there is an awareness of melodies, rhythms, harmonies, and tone colors that eventually are shaped into music. Basic characteristics of musical intelligence are competence in creating or performing music and an awareness of musical concepts such as tone, rhythm, timbre, expression, harmony, and form.

3. *Logical-mathematical intelligence* is the most evasive intelligence according to Gardner. Several reasons are noted in *Frames of Mind: The Theory of Multiple Intelligences*: (a) logic pervades many disciplines, for example, musical logic is different from practical logic, (b) numerous parts of the brain are used in logical reasoning, (c) higher level mathematics is difficult for anyone but mathematicians to grasp, and (d) facility with numbers does not necessarily equate in an understanding of mathematical functions. Characteristics noted by Gardner include "a love of dealing with abstraction" (p. 138), "the ability to handle skillfully long chains of reasoning" (p. 139), intuition–"mathematicians report that they sense a solution … long before they have worked out each step in detail" (p. 139), and "the ability to

discover a promising idea and then draw out its implications" (p. 143). Interestingly, talent in this area reveals itself very early and, according to Adler, "the major work of most mathematicians is over by the age of twenty-five or thirty" (cited in Gardner, 1983/1993a, p. 154). Aczel (1996) notes the intensity of mathematicians:

> None of the math students slept much at night, since our assignments were so difficult. That's what distinguished us from students in most other areas. Sometimes we'd have math nightmares … trying to prove some theorem or another before it was due in the morning. (p. vii)

4. *Spatial intelligence* is characterized by operations that include:

> The ability to recognize the identity of an object when it is seen from different angles; the ability to imagine movement or internal displacement among the parts of a configuration; and the ability to think about those spatial relations in which the body orientation of the observer is an essential part of the problem. (p. 175)

According to Gardner, determining the structure of the benzene ring and the double helix involved the "vivid role of imagery" (p. 191) and is an example of facility in spatial intelligence. Additional characteristics of this intelligence encompass, "the sensitivity to the various lines of force that enter into a visual or spatial display" (p. 176), as in a painting or a sculpture, and the ability to detect "resemblances that may exist across two seemingly disparate forms" (p.176), as in word-painting through the use of metaphors. Gardner suggests that linguistic and spatial intelligences have traditionally attracted the greatest attention of his proposed intelligences, and that considerable mapping has been completed in these two areas. In addition, numerous

psychometric tests have been designed to measure the spatial intelligence due to ongoing research in neuropsychology.

5. *Bodily-kinesthetic intelligence* is described through the actions of dancers, actors and athletes. Gardner includes as core capacities, "control of one's bodily motions and capacity to handle objects skillfully" (p. 206). Dance is viewed as the epitome of mature expression in bodily-kinesthetic intelligence. The dancer executes movements "precisely in shape and time" (p. 224) and expresses emotions that cannot be stated precisely in language. Isadora Duncan notes, "If I could tell you what it is, I would not have danced it" (cited in Gardner, 1983, p. 224). Additional bodily-kinesthetic skills are found in acting, particularly in the role of the mime where observational skills and memory for feelings are instrumental in developing desired skills. The skill of a mime depends upon the actor's ability to evoke in the audience a sympathetic response. In contrast, athletes draw upon "grace, power, speed, accuracy, and teamwork" (p. 230) to excel in their pursuits.

6/7. *The personal intelligences*. Both the *intrapersonal* and *interpersonal* intelligences are included in this section because they are described by Gardner in an interrelated fashion. Intrapersonal intelligence "involves the capacity to understand oneself, to have an effective working model of oneself–including one's own desires, fears, and capacities–and to use such information effectively in regulating one's own life" (1999c, p. 43). The core capacity of interpersonal intelligence is "*the ability to notice and make distinctions among other individuals* and, in particular, among their moods, temperaments, motivations and intentions" (p. 239). Gardner notes that evidence available for these intelligences is less substantive than for the more

"conventionally computational forms of intelligence" (p. 267). Yet, he views the personal intelligences as "basic and biological" (p. 275) as the other intelligences.

8. *The naturalist intelligence* focuses upon the recognition, appreciation, and understanding of the flora and fauna of the world. The same pattern-recognizing skills can also be used to classify artificial items, such as cars or paintings. Gardner (1999) identifies Carolus Linnaeus, Swedish scientist who invented formal botanical taxonomies in the 1700s, as an exceptional naturalist. The naturalist intelligence has caused some interesting problems. For example, the addition of the eighth intelligence took place in 1995, yet numerous resource materials were created before this time. Thus, there is some confusion about the number of intelligences and the theory is often "taught" as the seven intelligences theory. Further, since teachers frequently use ready-made materials created by translators who may, or may not, be aware of the addition of another intelligence, the lingering notion of seven intelligences continues.

Criteria used in selecting the eight intelligences. Gardner selected intelligences based on specific criteria or "signs." Seven initial intelligences were selected in 1983: linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, interpersonal, and intrapersonal. In 1995, the naturalist intelligence was added. For an intelligence to be incorporated in the list it had to align sufficiently with the criteria or signs. However, the selection process is an inexact science. Gardner (1983/1993a) notes, "It must be admitted that the selection (or rejection) of a candidate intelligence is reminiscent more of an artistic judgment than of a scientific assessment" (p. 63). The eight criteria or signs that were used in the selection process are as follows, in unordered fashion:

- Potential isolation by brain damage;
- Existence of idiots savants, prodigies, and other exceptional individuals;
- Identifiable core operation or set of operations;
- Distinctive developmental history, along with a definable set of expert 'end-state' performances;
- Evolutionary history and evolutionary plausibility;
- Support from experimental psychological tasks;
- Support from psychometric findings; and
- Susceptibility to encoding in a symbolic system. (1983/1993a, pp. 63-67)

In selecting each intelligence, Gardner drew on "evidence" from these criteria to justify the inclusion of a particular intelligence. Similarly, he rejected possible intelligence candidates based on these same criteria. For example, "the capacity to process auditory sequences" was rejected as an intelligence because "musical and linguistic strings are processed in different ways and can be compromised by different lesions" (1983/1993a, p. 67). Gardner's assumption that there are distinct areas of the brain responsible for particular intelligences aligns with his criterion, "potential isolation by brain damage." In the case of processing auditory sequences, studies of brain damaged patients indicate the existence of persons who have suffered strokes and lost the ability to speak, yet who can still sing using lyrics.

Examples of Gardner's use of criteria in selecting intelligences. The criteria were chosen by Gardner, who also conducted the analyses leading up to the selection of the intelligences. The data used in the analyses came from studies in diverse disciplines, including "neurology, special populations, development, psychometrics, anthropology, [and] evolution" (Gardner, 1993b, p. 38). The examples listed below indicate how criteria were applied in the selection process. Citations for the first seven intelligences are taken from *Frames of Mind: The Theory of Multiple Intelligences* (1983/1993a).

1. *Linguistic intelligence*: existence of poets who demonstrate exceptional facility with language; aphasia causes massive or partial loss of speech or understanding of speech; injury to the language system causes reading problems, while the "linguistic decoding capacity proves robust despite massive injury to the visual-spatial centers of the brain" (p. 98).
2. *Musical intelligence*: existence of musical prodigies; developmental history of singing as exemplified in bird-song and young children's vocalizing; "injury to the right frontal and temporal lobes causes pronounced difficulties in discriminating tones and in reproducing them correctly, even as injuries in the homologous areas in the left hemisphere (which cause devastating difficulties in natural language) generally leave musical abilities relatively unimpaired" (p. 118).
3. *Logical-mathematical intelligence*: existence of mathematicians, scientists and logicians with exceptional reasoning proclivities; certain *idiots savants* present extraordinary mathematical abilities caused by the "relative sparing or proliferation of certain brain areas" (p. 156); the developmental line, based upon Piaget's developmental stages, "begins with an intuition of number and an appreciation of simple cause and effect, [and] can be traced through to the highest reaches of contemporary logic, mathematics, and science" (p. 168).
4. *Spatial intelligence*: existence of artists, scientists, and chess players with extraordinary spatial abilities; some *idiots savants* and autistic persons present exceptional spatial abilities; findings in neuropsychology indicate that the posterior portions of the right hemisphere of the brain contain the primary site for spatial

processing; lesions in this part of the brain "cause difficulties in visual attention, spatial representation and orientation, imagery production, and memory" (p. 181).

5. *Bodily-kinesthetic intelligence*: existence of dancers, actors, and athletes with exceptional bodily-kinesthetic ability; the human species has the capacity for dominance, "the potential for one half of the body (and one half of the brain) to assume ascendancy across a range of motor and perceptual activities" (p. 212); apraxia, a neurological disorder, prevents individuals to carry out a set of motor activities in spite of understanding the request to do so. "Individuals who have completely lost their verbal memories … remain capable of learning and remembering complex motor sequences and patterns of behavior" (p. 213).

6/7. *Personal intelligences* (*intrapersonal* and *interpersonal*): personal intelligences follow a "characteristic pattern of development" (p. 242); "neurological representation and … discernable patterns of breakdown" (p. 242), for example, damage to the frontal lobes can change a person's personality but "exerts only relatively minor effects on that individual's ability to solve problems (such as those found on a standard intelligence test)" (p. 261).

8. *Naturalist intelligence*: "core capacities to recognize instances as members of a group … ; to distinguish among members of a species; to recognize the existence of other, neighboring species; and to chart out the relations, formally or informally, among the several species" (Gardner, 1999c, p. 49).

Transition From Psychological Theory to Educational Theory. Gardner (1983/1993a) notes that although "psychology does not dictate education; it merely helps one to understand the conditions within which education takes place" (p. xix). MI theory

supports an educational environment in which students have "a number of domains of potential intellectual competence which they are in a position to develop, if they are normal and if the *appropriate stimulating factors* [italics added] are available" (p. 284). The problem often found in a traditional educational environment is that only selected intellectual skills are developed while others are neglected. Although the multiple intelligences, as identified by Gardner, are seldom used in isolation, certain intelligences are given more attention than others. Consider, for example, the linguistic and logical-mathematical intelligences that are the main concern in most schools. We need to survey only a few indicators to see the pre-eminence of language learning and mathematics in regular classrooms: time allotted for instruction of subjects, teaching resources available for subjects, general status of subjects, importance of measuring students' competence in subjects, availability of consulting support in subjects, and government funding to increase achievement in subjects.

In Alberta, the recommended minutes of instruction for the elementary grades are, per week: 375-450 minutes for language arts, and 225 minutes for mathematics. In contrast, music *might* receive 60 minutes per week, if there is a qualified music teacher. The recommended allotment for music and art, combined, is 150 minutes per week. If the school does not have a music specialist, music education is often neglected since many classroom teachers are uncomfortable teaching this subject because of their minimal music knowledge. In public schools in Edmonton, Alberta, elementary students attend school 1500 minutes per week. School budgets for language learning and mathematics typically get the majority of available curriculum funding. Alberta provincial exams test knowledge and skills in language arts, mathematics, social studies and science. Edmonton

Public Schools employs seven consultants in Language Arts/English, six consultants in Mathematics, and one consultant in Music. The Edmonton Public School district uses funding from the recent Alberta Initiative for School Improvement (AISI) project to primarily focus upon improvement in literacy and mathematics. In contrast, Gardner (1983/1993a) notes, "MI theory seeks to establish the pervasiveness of intellectual activities in areas where it has hitherto often been excluded" (p. 285).

MI Theory Implementation Efforts

This section reviews selected examples of MI theory "in action," which represent diversity of implementation practices. Illustrations of this diversity include SUMIT (Schools Using Multiple Intelligences Theory); assessment of young children's strengths (Project Spectrum); a focus on achievement results (Campbell & Campbell, 1999); a developmental continuum (Fuller School); innovative interpretations (Key School and an Australian account); third world implementation (use of MI in Bangladesh and Turkey); and a report from Sweden. Some implementation efforts originated with teachers, whereas others emerged as initiatives from governments, university-based researchers, school administrators, or from the school district level.

SUMIT. Kornhaber's (1999) SUMIT study describes forty-one schools in the United States that incorporated MI theory in their daily practice for at least three years. Kornhaber's detailed accounts of integrated projects at the primary level are of particular interest. Examples of projects such as the "River Study," "Mathematics Lab," and "Schneider's Ink" (a newspaper production) reveal how particular teachers interpreted and applied MI theory in grades two and three.

Project Spectrum. Project Spectrum was a ten-year research project "dedicated to developing an alternative approach to curriculum and assessment" (Chen et al., 1998, p. xiii). The theoretical framework for the project was provided by Gardner's MI theory and Feldman's (1998) nonuniversal theory. In essence, a Spectrum classroom presents a learning environment that "elicits children's distinctive strengths" (Gardner, as cited in Chen et al., 1998, p. 23) through a variety of carefully structured activities. Through observations and assessments of children's interactions with these activities, an "intelligence profile" is constructed. This profile describes the child's strengths and weaknesses and offers specific recommendations on ways in which to build on strengths as well as to develop areas of weakness. In Feldman's (1998) words,

> By shining a wider and brighter light on children and their activities and products, we hope to illuminate more of the potential of children's minds and to increase the likelihood that they will realize their potential both in and outside of school. (p. 20)

Gardner and Krevchesky (in Gardner, 1993b) describe four qualities of the Spectrum approach:

1. engagement through games that are "meaningful and contextualized" (p. 87);
2. integration of assessment in the curriculum, as compared to a formal testing situation;
3. use of instruments that assess the intelligence in operation, "instead of through a linguistic or logical-mathematical lens" (p. 87); and
4. indication of "how a child's strength may provide access to … areas in which the child shows less promise" (p. 87).

Project Spectrum was implemented in early childhood programs and in elementary schools. Significant aspects of the "Spectrum classroom" involve a "prepared" environment (often in the form of learning centers and activities focusing on different domains), and the use of museum projects and mentorship programs. In 1995, Harvard's Project Zero estimated that there were more than 200 schools in the United States incorporating MI theory and the Spectrum model of implementation.

Key School. Another early implementation of MI theory took place in Indianapolis in 1987 (see *ABC News Special* with Peter Jennings and Bill Blakemore, 1993). The Key School was planned by eight educators who had read about Gardner's (1983) theory. Campbell and Campbell (1999) note that this is the first school in the United States that centered on MI theory. A curriculum was adopted to address the seven intelligences identified by Gardner in 1983. A founding principle of the Key School is that each student needs to have his or her intelligences developed on a daily basis. Students engage in three practices: first, each student participates daily in an "apprenticeshiplike 'pod' where he works with peers of different ages and a competent teacher to master a craft or discipline of interest" (Gardner, 1993b, p. 113); second, a member of the community who is a specialist in a domain visits the school once a week to demonstrate a craft or occupation, and; third, students engage in projects that focus on one of three themes designated by the school for the year (e.g., "Connections" or "Mexican Heritage").

Fuller School. Fuller School initiated an MI program in 1991. This school recognizes the developmental nature of implementing a new program. Chen et al. (1998) describe seven steps that teachers at Fuller School experienced when implementing MI

theory. Briefly, they are, Step 1: teacher-related activities that rely on preexisting methodologies; Step 2: learning is seen as a continuum with activities that accommodate a broad range of needs; Step 3: learning begins to be structured around MI theory; Step 4: MI activities are documented by the teachers, collaborative sharing of ideas takes place; Step 5: students become aware of their own learning process, and teachers refine learning activities; Step 6: teachers expand on their repertoire of learning and assessment activities; Step 7: teachers take a more active role in making decisions about the school's MI program.

One might view these steps as part of the teachers' mediation processes. The teachers' understanding of MI theory develops as they move from the abstraction of theory to the reality of their classrooms. Through increased knowledge, collegial interactions and personal experiences, the teachers develop an MI approach that fits their situation.

Campbell's and Campbell's study of six MI schools. In 1999, Campbell and Campbell published a book describing six "successful stories" of MI implementation. The six schools include two elementary, two middle and two high schools in which MI has been implemented for at least five years. The schools range in demographics–large and small, rich and poor, inner-city and suburban. Success is defined as increased achievement results as measured by state assessments and standardized tests. Increases in achievement results–subsequent to the implementation of MI theory–are noted throughout the book (e.g., pp. 24, 38, 49, 60, 74, 87).

One of the six schools studied by Campbell and Campbell (1999) is the Key Renaissance Middle School in Indianapolis, which began in 1993 as an extension of the

Key School. With 500 students on a waiting list, the school accepts new students by lottery. Campbell and Campbell note the following MI learning outcomes:

- Communicate clearly in written form;
- Be verbally articulate in two languages;
- Sing or play a musical instrument proficiently;
- Use math and logic in applied areas;
- Use technology as a tool for inquiry and communication;
- Recreate the three-dimensional world through the visual or practical arts;
- Be physically fit;
- Select an applied area for inquiry, reflection, and apprenticeship;
- Participate in stewardship activities with nature;
- Express a capacity to care about global issues; and
- Participate in groups and organizations in the larger community. (pp. 52-53)

Each subject is taught for 200 minutes weekly. In spite of this highly unusual practice, Campbell and Campbell note that students exceed district goals on statewide achievement tests.

Through case studies, Campbell and Campbell determined that teachers in the six schools use various approaches of incorporating MI into the curriculum. Examples include numerous entry points into lesson content; arts-based instruction; interdisciplinary programs; self-directed learning through classroom projects; and the development of expertise through apprenticeships (see also Campbell, 1997; Scherer, 1999).

Campbell and Campbell (1999) note "the powerful influence of teachers' beliefs on students and the effect of such beliefs on classroom learning" (p. vii). The authors link Harvard researchers Rosenthal's and Jacobsen's "connection between teacher expectation and student learning" (p. 2) with the notion that MI theory bolsters beliefs about student competence. "Gardner's work offered teachers a model of intelligence in which to believe" (p. 2). In my view, Campbell's and Campbell's most startling insights are not the

accounts of MI learning activities and positive achievement results, but the teachers' mindset that all children are capable of success in at least one area, and that MI theory provides a framework for developing each child's intelligences (see also Bellanca, 1998).

Use of multiple intelligences in Australia. Vialle (1997) reports how "multiple intelligences theory has transformed teaching in Australia, especially among preschool, primary school, and special educators" (p. 65). A survey of 30 schools, and interviews with 150 teachers, indicate two basic approaches to MI implementation: (a) teaching *to*, and (b) teaching *through* multiple intelligences. Teaching *to* an intelligence has as its goal the development of a particular intelligence, for example, teaching musical skills in order to develop the musical intelligence. Teaching *through* an intelligence entails using an intelligence to teach a concept in a different domain, for example using a song to remember a mathematical formula.

Other Australian efforts include the use of integrated units and the staging of a Multiple Intelligences Olympics where students' diverse abilities are celebrated. Vialle notes that there is a significant shift from teacher-centered to student-centered instruction and that "multiple intelligences provides a framework that helps teachers look for the differing strengths and develop the full range of intelligences" (p. 69).

Use of multiple intelligences in Bangladesh. Ellison and Rothenberger (1999) testify to the harsh educational conditions in Bangladesh: "In 1997, only 62 percent of children completed the 5th grade" (p. 54). As a response, the government is working on developing policy that will increase "the quality of primary education through active teaching and learning methods" (p. 55). While a national policy promoting the use of MI theory was adopted in 1998, it is too early to evaluate this effort. The authors note,

however, that culture-appropriate MI strategies are used in various schools and that instruction has become more personalized. Interestingly, the value of the local culture is recognized in this educational intervention.

Use of multiple intelligences in Turkey. Saban (2002) describes the journey undertaken by staff at Esentepe Elementary School, as they implemented MI theory "as a strategy for personalizing students' education" (p. 71). Using Gardner's (1983/1993a, 1999) books and various MI teaching resources, the teachers embraced "a theoretical foundation of the human mind and an educational philosophy that responded to students' differing needs" (p. 72). MI theory allowed the teachers to focus upon each student's potential: "All students have potential – they are simply smart in different ways" (p. 72). Saban, assistant professor at Selcuk University and education consultant, translated Armstrong's (2000) student inventory into Turkish in order to assess the students' intelligences.

The school implements an MI approach through regular core courses, "exploratories," and projects. During Friday afternoon exploratories, students rotate through multiple intelligences activities. Interdisciplinary projects offer students choices of what and how to learn. Saban (2002) attributes the seeming success at Esentepe to "teacher discussion, collaboration, and professional development" (p. 73). Currently, there is a waiting list to attend the school.

Saban (2002) notes that the work at Esentepe has caused a shift in perception in the Turkish education system and "a new approach to the way education is delivered to students in the city of Konya" (p. 73). Interestingly, MI theory has caused a number of changes to occur in this Turkish city: (a) teachers and students have changed their beliefs

about intelligence; (b) new learning activities have been developed; and (c) a shift has occurred in governmental attitudes about teaching and learning. I discuss this paradigm shift, and how it relates to theory application, more fully in chapter six.

Use of multiple intelligences in Sweden. On November 27, 2002, Swedish Radio, P1, broadcast a program about the use of multiple intelligences theory at Eklundaskolan, Örebro, Sweden. Teachers, Anette Frank and Hanna Höglin, describe changes in teaching practice because of MI theory. They note that the most striking features of MI theory are the child's right to be successful and to feel valued. In one teacher's words: "The whole person is important. The MI conceptual framework, *grundsynen,* is extremely important. Then, we deal with how to apply it in the classroom."

During the program, the reporter visits Hanna's classroom in which the students study electricity, using multiple intelligences. In the course of the lesson, students move through various activities that draw upon different intelligences. The reporter finds the room busy and noisy. He wonders how the students can learn in this alternative environment. Hanna responds: "The students are engaged and motivated. This leads to further learning."

The students at Eklundaskolan assess their own intelligences using a checklist. They check off statements (42 in total) that they think describe who they are. In addition, the parents have been asked to respond to a more detailed questionnaire. During conferences, parents, student and teacher discuss the student's intelligence profile. The teacher stresses that the intelligence profile is not a static assessment, and gives an example of how she might explain to a student how someone's strengths might facilitate

the learning process. "The spatial and bodily-kinesthetic intelligences appear to be some of your strengths. We can use those to help you learn. If you get stuck doing homework, you can use those two intelligences to help you out, to get you going."

The reporter thinks MI theory sounds *flummigt* ("hokey" or "off the wall"). The teacher responds by describing the traditional approach – calm, orderly, and with the teacher in control. She contrasts this approach with teachers having faith in children and their potential, and that human beings are more than paper and pencil, reading, writing and arithmetic. "There are so many pieces that people need when solving problems or creating something new."

Eklundaskolan has used MI theory as an instructional framework for approximately three years. According to Jan Steinberg, PhD, principal at the time of initial implementation and with an interest in pedagogy, the change was teacher-initiated. "We looked for another way to think about learning." Steinberg notes that the theory helps more children to experience success. When asked if there are any disadvantages with the theory, he mentions that MI activities might at times be "shallow learning experiences." He desires a solid knowledge base in subject areas; he talks about balance. "What I want to make sure is that the teachers pedagogically ensure that there is a sound knowledge base in the activities, that there is a depth to the knowledge presented." He describes the challenge of experiencing learning through a song or a dance and then completing a paper-and-pencil test in so-called assessment-driven education. He concludes that primary teachers in Sweden do not need to face this challenge since marks are not given in the lower grades.

In concluding this chapter, let us now look at a few observations on MI theory and achievement results.

Measurable results of MI implementation. Gardner has remained fairly silent on the measurable results of MI implementation, because "we could not be sure which effects were due to MI theory. Schools are incredibly complex institutions, located in incredibly complex environments" (1999a, p. 113). Gardner suggests that it is difficult to prove that improvements are due to implementation of MI theory, but notes the following results from Kornhaber's SUMIT study:

> 78 percent of the schools reported positive standardized test outcomes with 63 of these attributing the improvement to practices inspired by MI theory. Seventy-eight percent reported improved performances by students with learning difficulties. Eighty percent reported improvement in parent participation, with 75 percent of these attributing the increase to MI theory; and 81 percent reported improved student discipline, with 67 percent of these attributing the improvement to MI theory. (p. 113)

Although my study does not focus on achievement results, the teachers in the case study occasionally addressed this issue. In our initial conversation, the grade 6 teacher referred to the excellent achievement results of her grade 6 class during the 1999-2000 school year. She observed that this was the first cohort group in the school to have experienced instructional approaches based upon MI theory during grades 1 – 6.

Chapter III

RESEARCH DESIGN

This chapter describes the design used to collect, organize and analyze data in order to increase the understanding of the research problem: How does mediation of MI theory inform the nature of theory application? I agree with Stake (1995) who notes, "The function of research is not necessarily to map and conquer the world but to sophisticate the beholding of it" (p. 43).

My research focuses upon the mediation of a theory in the classroom setting – a complex process in a highly volatile environment. I use an "instrumental case study" design because it supports the collection of multifaceted and detailed data for analysis of complex processes. More importantly, this design can be used to examine carefully selected cases that shed light upon an external problem (in this study, the nature of theory application).

Stake (1995) notes that there are different types of case studies: intrinsic, instrumental and collective. The intrinsic case study focuses upon the originality of the case, for example, Winston Churchill or Nelson Mandela. The instrumental case study sheds light upon a particular phenomenon, for example, a new student marking system or the implementation of a reading program such as "Basic Literacy." The collective case study draws its strength from several "cases" that bring different perspectives to the research problem. In this study, I examine two teachers' practice to illuminate the research problem. The originality of the two teachers is not important to the purposes of the study.

Stake (as cited in Berg, 1998) observes that "instrumental case studies are cases examined to provide insight into some issue or to refine some theoretical explanation" (p. 216). Berg (1998) notes that when researchers conduct instrumental case studies,

> the case actually becomes of secondary importance. It will serve only a supportive role, a background against which the actual research interests will play out. Instrumental case studies often are investigated in depth, and all of its aspects and activities are detailed, but not simply to elaborate the case per se. Instead, the intention is to assist the researcher to better understand some external theoretical question or problem. Instrumental case studies may or may not be viewed as typical of other cases. However, the choice of a particular case for study is made because the investigator believes that his or her understanding about some other research interest will be advanced. (p. 216).

Because my research focuses upon the nature of theory application, an external problem, the instrumental case study serves the goal of increasing my understanding in this area. More importantly, this approach enhances what can be learned about theory application in the classroom setting. By looking closely at two teachers' experiences with MI theory, I gain the kind of detailed and rich knowledge that enables me to consider the subtle nuances of theory application.

Schön (1983) suggests that researchers who enter the swampy lowlands "deliberately involve themselves in messy but crucially important problems and, when asked to describe their methods of inquiry, they speak of experience, trial and error, intuition, and muddling through" (p. 43). Clearly, my findings are dependent upon my background and my interpretations of the data. Someone else might have drawn different

conclusions. Considering Stake's (1995) notion of research sophisticating the beholding of the world, this study serves to expand upon our understanding of theory application by bringing added knowledge to this complex and still largely uncharted topic.

The following issues are addressed in the design: data desired, data gathering, data organization and analysis, and data trustworthiness.

Data Desired

To gain an understanding of the nature of theory application, I examine how teachers mediate between MI theory and their students. More specifically, I probe the actions, thinking and judgements, as well as the perceptions and experiences of teachers who have worked for an extended period at implementing the theory. Various facets of teaching behavior are explored. These include, but are not limited to: professional development, assessment of student needs, planning for instruction, use of resources, implementation of learning activities, differentiated instruction, and refinement of instructional processes.

In chapter one, I noted that phases of the research focus simultaneously on three interdependent issues of the mediation process: (I) Philosophical Phase, (II) Interpretive Phase, and (III) Practical Phase. The interpretive and practical phases address how teachers interpret the general and abstract nature of MI theory (thinking and judgements) and what specific activities they present to students (actions). In addition, I have purposely included a philosophical phase because "educators who are attracted to the MI/Spectrum approach often find that the core ideas are compatible with their own previously held beliefs" (Chen et al., 1998, p. 134). Thus, I hypothesize that teachers' beliefs about teaching and learning affect the mediation process.

Data Gathering

Experiencing MI theory in a naturalistic setting was an integral component of this study from its very conceptualization. I yearned to see how the theory "behaved" in the classroom. Questions of how theory might change teachers' approach to instruction, and thus affect student learning were particularly intriguing. In retrospect, the field study did not disappoint, but rather leave me with a desire for further inquiry.

Reciprocal researcher-participant relationship. Based upon personal assumptions of democracy, and recognition of the valuable contributions that teachers make in generating knowledge, I conducted the fieldwork in a reciprocal framework. This portion of the research can be viewed as a journey that the teachers and I embarked upon as a team. The teachers brought numerous insights from their experiences with MI theory in the classrooms; I brought notions of MI theory and diverse implementation efforts from the literature.

By spending time with the teachers, interviewing and observing them, I gained insights that I could not have obtained strictly from the readings. Stake (1995) notes that the naturalist observer favors

> a personal capture of the experience so, from their own involvement, they can interpret it, recognize its contexts, puzzle the many meanings while still there, and pass along an experiential, naturalistic account for readers to participate themselves in some similar reflection. (p. 44)

The case study resulted in an extraordinary learning opportunity to observe theory implementation in the classroom and to talk to practitioners who had made a commitment to implement a particular theory over time. Our collective contributions assisted us in

enhancing our skills as both scholars and practitioners. In addition, the relationships that were established during the case study have continued to the present date (spring 2003).

Cochran-Smith and Lytle (1993) suggest that teacher research "will present a radical challenge to current assumptions about the relationships of theory and practice, schools and universities, and inquiry and reform" (p. xiv). Further, they argue that the inclusion of teachers in research will result in "the disenfranchised [beginning] to play increasingly important roles in generating knowledge and in deciding how knowledge ought to be interpreted and used" (p. xiv). The inclusion of teachers in research is important for anyone who wants to strengthen the link between theory and practice. Behaviors that encourage collaborative relationships might include spending time with teachers in an effort to understand the complexities of the classroom, seeking teachers' opinions on issues of interest, and showing respect for the work that transpires in the classroom.

Selection of participants. Because of my background as an elementary teacher, and because MI theory has been more widely used at the grades 1-6 level, I selected participants who:

1. had an extensive understanding of MI theory,
2. were applying MI theory in grades 1-6 classrooms, and
3. were interested and willing to participate in the proposed research.

As an education consultant, I have the good fortune of meeting, and working with, teachers, administrators, and other consultants on a daily basis. From this vast network, I encounter educators who are interested in MI theory and who implement it to varying degrees. From this pool of possible case study candidates, I selected two teachers who fit

my proposed criteria. While I had the option of choosing only one teacher for the instrumental case study, the reasons for involving two teachers were compelling: (a) they worked in the same school, which facilitated access; (b) they were interested in participating; (c) they enjoyed collaborating with each other; (c) they taught at different division levels, I and II (grade 3 and grade 6); (d) these grades undergo yearly provincial achievement exams in the province of Alberta, meaning that there is increased pressure on teachers to closely align their instruction with the provincially mandated curriculum; (e) while the teachers worked in the same school, they applied MI theory in different ways based upon their past experiences, knowledge, judgements, and the students that they taught, (f) the teachers had willingly implemented MI theory for the past five to seven years, and (g) the teachers had presented their findings in workshops and inservices and were recognized as experts on MI theory.

Because of careful consideration of the aforementioned criteria and the reasons provided above, I was able to work extensively with two outstanding teachers, Kerstin Hillman and Mae Kowalski (all participants' names are pseudonyms).

Data sources. Data were collected from the following sources between March 1 and June 30, 2001:

1. audio-taped interviews with the two participating teachers;
2. audio-taped interviews with interested stakeholders (e.g. the principal who initiated MI implementation in the participating teachers' school, the current principal of this school, and another consultant who used to work at the school during the MI implementation);
3. lesson and unit plans;

4. instructional resources;
5. classroom observations;
6. field notes based upon observations;
7. reflective comments by the investigator regarding field note entries and audio-tapes;
8. member checks (write-ups were checked for accuracy).

Interviews. The interview questions were based upon the three phases and guided by general questions. In Phase I: How does the teacher's philosophy of education align with the theory's philosophical underpinnings? Why has the teacher adopted or agreed to try this theory? In Phase II: How have teacher education, professional development activities and resource materials affected the interpretation of the theory? What decisions has the teacher made in creating a fit between the theory and the classroom context? How have school and district policies affected the interpretation? In Phase III: How has the teacher applied MI theory in practice and to what extent? How has support, or lack thereof, from stakeholders affected the implementation? Detailed interview questions may be found in Appendices A and B.

The interviews were semi-structured with open-ended questions. While the questions provided a framework for obtaining the teachers' experiences and insights related to mediation, they were not intended to be restricting. Rather, the questions were viewed as catalysts that triggered the recall of significant events. I conducted several semi-structured interviews, 60-90 minutes in length, with each participant. In addition, I conducted brief, informal interviews on a regular basis to clarify classroom observations.

The purpose for interviewing interested stakeholders was to expand upon the context for the reader, and to give additional perspectives, or "meaningful parallelism

across data sources" (Miles & Huberman, 1994, p. 278), on the effect of administrative support during the implementation of a new initiative. I conducted one interview each with the interested stakeholders.

I transcribed all audiotaped interviews. While I had initially thought of only transcribing those portions that specifically related to my research, I found the content so captivating that I transcribed every tape. Stake (1995) notes that "the amount of taped data a researcher can work with is very small. The researcher should develop skill in keeping shorthand notes and count on member checks to get the meanings straight" (p. 56). Fortunately, the taped interviews were manageable in length and provided important nuances that facilitated added understanding of the responses. The teachers read the write-ups and provided editorial comments. Both teachers agreed that the write-ups were true representations of their teaching behaviors and of the classroom events.

Observations. Classroom observations focused upon those activities that utilized MI theory. The teachers and I reviewed various classroom activities that demonstrated teaching *to* and *through* the multiple intelligences, and how they planned for instruction using MI theory. The teachers pointed out important elements of MI theory application, for example, student awareness of the eight intelligences; learning activities that focus upon different intelligences; multiple entry points to the curriculum; and the integration of fine and performing arts in the regular classroom.

I was particularly attentive to how the teachers attempted to meet the needs of a diverse student population since MI theory supports the notion of providing learning experiences that develop the intelligences that reside within each unique child. Gardner (1983/1993a) argues that each student possesses all intelligences but in different degrees.

Therefore, one of the major challenges for the teacher is to structure a variety of activities for children who learn in different ways. For example: How does the teacher address the needs of a student with weak linguistic abilities? How is the student with high musical skills accommodated? How does the teacher provide differentiated instruction and incorporate MI theory in the "chaotic" and hectic environment of the classroom?

I preferred typing my field notes as I observed the two classes. The students became used to seeing me with my laptop computer, and I became part of the regular routine. Comments from other teachers with whom I have worked as a consultant indicate that my note taking style is extensive and that it captures the essence of what transpires in the classroom.

Document analysis. I examined the teachers' planning documents (see Appendix C), a student interest inventory (see Appendix D), and a student MI checklist (see Appendix E) in search of information that clarifies how teachers mediate MI theory in the classroom. In addition, I reviewed various teaching resources, including commercially prepared MI resources, and diverse handouts distributed through professional development activities such as inservices, workshops, and conferences.

Data Organization and Analysis

The primary issue for the data organization and analysis was two-fold: (a) to make sense of the data, and (b) to ensure that the data served the research.

The most helpful tool in organizing and analyzing the data was a system used by Harvard researchers in the Good Work Project (see e.g., Gardner, Gregory, Csikszentmihalyi, Damon & Michaelson, 2001; Morway, Solomon, Michaelson & Gardner, 2001). In this study, interview responses were coded according to eleven

separate categories (Gardner et al., 2001, p. 13). The intent of the Good Work Project was to investigate through intensive, face-to-face interviews "ways in which leading professionals in a variety of domains carry out good work. 'Good work' is used in a dual sense: 1) work that is deemed to be of high quality and 2) work that is socially responsible" (foreword). I revised the categories to fit my purposes (see Appendix F), and assigned colors to each category. As I read and reread the interview transcripts, I became adept at color-coding since the categories made sense to me.

A strategy that proved useful in conceptualizing the research process was Carney's Ladder of Analytical Abstraction (as depicted in Miles and Huberman, 1994, p. 92). See Appendix G. The strength of this approach is that it starts with descriptions (coding, analytic notes on linkages) but, as the researcher gains knowledge and understanding, ends with explanations (synthesis, theory development). The three levels of this ladder, in ascending order, are (1) summarizing and packaging the data, (2) repackaging and aggregating the data, and (3) developing and testing propositions to construct an explanatory framework.

Reporting (Chapters IV and V)

I allotted one chapter for each case study. While there were similarities and contrasts between the two participating teachers, the goal was not to focus on comparisons but to allow each case to stand on its own. By taking this approach, I encouraged the richness of each teacher's account to flourish.

I decided not to include a separate chapter for the data obtained from the interested stakeholders. Instead, I incorporated their views into chapters IV and V.

Discussion and Implications (Chapter VI)

Chapter VI contains my findings, the illumination of my research problem. I divide the chapter into three parts. In Part I, I compare and contrast the theory application at Cloudberry School with other MI applications and Gardner's suggested use of the theory. In Part II, I analyze Kerstin's and Mae's use of MI theory against the literature on theory and practice. In Part III, I discuss the nature of theory application.

Data Trustworthiness

Miles and Huberman (1994) ask: "How will you, or anyone else, know whether the finally emerging findings are *good*?" (p. 277). Rudestam and Newton (1992) note: "The key to evaluating a completed study is whether or not the selected method is sufficiently rigorous and appropriate to the research question, and whether or not the study is conceptually and theoretically grounded" (p. 23).

Questions of trustworthiness in qualitative research abound: Has care been taken to investigate those issues that illuminate the research problem? Are the data gathered and processed according to a recognized method? Are the participants' voices authentic? Is the account well rendered? Does the story "ring true?" While there are few set rules, commonly accepted practices reinforce the quality of the research. In the following sections, I address issues related to trustworthiness, using the headings provided by Miles and Huberman (1994, pp. 278-280).

Objectivity/Confirmability. I have attempted to disclose personal assumptions, values and biases so that the reader can make a fair assessment of the research findings. As an example, I have discussed personal values of democracy and my interest in MI theory as a potentially useful teaching tool. An example of providing objectivity can be

found in chapter two where I note critique of MI theory. Similarly, I report positive as well as negative aspects of the mediation process. I link research findings from the literature to the obtained data. Methods and procedures have been explained in sufficient detail. Thus, other scholars could conduct a comparable investigation using the same design.

Reliability/Dependability/Auditability.

The research design is congruent with the research question. In a highly complex situation, it is imperative to provide the participants with opportunities to share their knowledge and experiences in a comfortable setting and over a period of time. Thus, the instrumental case study is an effective way of obtaining data essential for this study.

A reasonable time frame was allotted for data gathering. Classroom observations augmented the interview responses. In addition, meaningful parallels across data sources emerged from discussions with interested stakeholders.

Internal Validity/Credibility/Authenticity. Rudestam and Newton (1992) suggest that internal validity can be ascertained through structural corroboration.

> Such corroboration might be accomplished by spending sufficient time with subjects to check for distortions (prolonged engagement), exploring the participant's experience in sufficient detail (persistent observation), and checking multiple sources of data such as other investigators, written records, diaries, field notes, and so on (triangulation). (p. 39)

I selected the instrumental case study design because it yields thick descriptions and numerous insights into the mediation process. I have attempted to render an accurate account that enables a vicarious experience for the reader. Triangulation has been utilized

through the involvement of interested stakeholders. I have encouraged authenticity by including both positive and negative aspect of the mediation process.

An effort was made to process the data in a timely fashion. Member checks were conducted through participant reviews of transcribed portions of the interviews. Participant comments and reflections were solicited, and changes made accordingly.

External Validity/Transferability/Fittingness. Berg (1998) notes that "case methods are…useful and to some extent generalizable….The logic behind this has to do with the fact that few human behaviors are unique, idiosyncratic, and spontaneous" (p. 218). If they were, "any type of survey research…would be useless" (p. 218). Guba and Lincoln (1998) argue that "generalizations can occur when the mix of social, political, cultural, economic, ethnic, and gender circumstances and values are similar across settings" (pp. 212-213).

Rudestam and Newton (1992) offer the following insights:

> *External validity* refers to the generalizability of the findings of the study. The qualitative study emphasizes the "thick description" of a relatively small number of subjects within the context of a specific setting. Samples can change as the study proceeds, but generalizations to other subjects and situations are always modest and mindful of the context of individual lives. (p. 39)

Kincheloe and McLaren (1998) observe, "if generalizations are to be made – that is, if researchers are to be able to apply findings in context A to context B – then we must make sure that the contexts being compared are similar" (p. 288). Clandinin and Connelly (2000) suggest that

> literary uses of narrative in relating to our audience are the narrative inquirer's counterpart to generalizations. The narrative inquirer does not prescribe general applications and uses but rather creates texts that, when well done, offer readers a place to imagine their own uses and applications. (p. 42)

Clearly, the findings of any small sampling can be used only cautiously. I have consequently attempted to provide context-rich descriptions in order to let the reader decide if the conclusions obtained from this study can be transferred to other settings.

Utilization/Application/Action Orientation. Whether the findings of this study will be used by others remain to be seen. What I do know is that it has increased my understanding of theory application and kindled a desire for future research endeavors. In addition, the research is currently assisting me in my quest for improved instructional processes as education consultant. Miles and Huberman (1994) ask several intriguing questions about the capacity of the proposed research findings to (a) raise consciousness, (b) serve as catalysts for future recommendations, and (c) empower those who use the findings. In light of these queries, I view my study as a positive contribution to enhanced instructional processes and to the understanding of the nature of theory application.

Ethical Considerations

Permission to conduct this study was obtained from the University of Alberta, the Department of Educational Policy Studies, Ethics Committee, and Edmonton Public Schools. Confidentiality was guaranteed to all participants. Research procedures were explained to participants and written consent obtained before interviews and observations were undertaken. Participants were informed of their right to withdraw from the study at any time without fear of penalty or prejudice. Transcribed portions of the interviews were

shared with participants, and quotations used as citations were sent to participants for verification and approval. Participants were encouraged to ask questions or to share concerns.

Chapter IV

CASE STUDY ONE: MAE KOWALSKI

Stake (1995), in his book *The Art of Case Study Research*, includes a passage about a man who navigates by using a sextant. "He would take *six* stars, if the clouds would let him, and then finalize his inference with a dot in the middle of the intersections. His *Tables* called this process "triangulation" but I never heard him use the word" (p. 110). Of significance in this passage is that the sailor did not talk about triangulation; he simply did it. Similarly, during classroom observations, MI theory was not talked about a great deal. Instead, it was embedded in the school and classroom culture, at times obvious but more often a natural part of daily practice. However, in conversations and interviews, Mae and I spoke continuously of MI theory.

Setting

Cloudberry School. Cloudberry School is located in a middle-class neighborhood of a large urban center in western Canada. The homes surrounding the school are well kept with manicured lawns and flowerbeds. Nearby is student housing for mature university students with families. The school's "catchment area" includes the immediate neighborhood and university student housing, but due to the school district's "open boundary" policy, students from other areas can attend the school if space is available. The enrolment for the 2000-2001 school year is 213 students in kindergarten (K) through grade six, comprised of 50-52 students from the immediate neighborhood, 92 from the university student housing, and the remainder (approximately 70) from other areas of the city. Jill Summers, principal, says that the students from other areas come to Cloudberry because "they love it" and because the school has an out-of-school care

program. She considers 205-215 students to be the perfect enrolment for the physical size of the school.

Upon entering the school, visitors often comment on the beautiful artwork that is on display in the entryway and in every hallway. The artwork is created by students during the school year and encompasses different media (e.g., clay sculptures, *papier mâché* masks, pencil and charcoal drawings, watercolor and pastel crayon paintings). The artwork is of unusually high quality for elementary students and is marked "Picture Smart, Nature Smart, or Word Smart," depending on the context. Some artwork is accompanied by further explanatory remarks and written reports.

A focal point in the library is a colorful display reaching from floor to ceiling. The display consists of a large map of the world, surrounded by images of stars, happy children's faces and books. The display says, "Imagine … a world of possibilities … art, literature, math, science, social studies, music." On the map are tacks in different colors placed on countries in North America, South America, Africa, Asia, and Europe. The tacks represent the origins of the students' families. In the current (2000-2001) principal's words, Cloudberry "is a mini United Nations and it's wonderful. The children learn so much from each other" (I, p. 25). She explains, "I am sure it's the only school, the middle of January, you can see somebody walking down the hall in fluorescent reds, pinks, purples and yellows, all on the same outfit, and no one even bats an eye" (I, p. 24). Mae describes the student population as multi-cultural with a high English as a Second Language (ESL) component, "a lot of Asian, a lot of Filipinos, African, all over … they all come with varied background knowledge" (I, p. 15).

The grade three classroom. Mae's grade three classroom is a hub of activity. On any given day, students arrange and rearrange themselves in different groupings depending upon the activity, for example, large group on the rug at the back, smaller groups of two to four students throughout the classroom, independent work at desks, or in pairs at the communal computer situated centrally in the room. Mae has an unusually large group of 30 students this year. Thus, she has been allocated a full-time intern (a recent graduate from the Bachelor of Education program at the local university) with whom she team-teaches. At times, half of the class goes to the computer lab or to the gymnasium while the rest stays in the classroom. During the course of the day, various students leave for individualized help with academic work or with English language acquisition. Twice a week, the students go to the music room for instruction by a music specialist. An art specialist comes into the room two times a week to provide art activities. Other visitors include a nurse who comes in to talk to the students, and a special needs consultant who stops by to observe a particular child. During my observations, parent volunteers are not apparent.

The walls in the grade three room are filled with colorful posters and student work. A large castle display is situated in the back of the room beside "the rug" and a well-used couch. This couch becomes my home for classroom observations but I am by no means isolated. Although the couch was made for three adults, four children squeeze onto it to my right during rug activities. To my left, other children perch on a stool and a low table. Mae makes a rule so that only three children can sit beside me in order to give my right arm enough space to type. I have an urge to record as much as possible; thus, I

bring my laptop. I find that the recording skills that I have honed as a consultant come into good use.

The atmosphere in the classroom is warm and affectionate. I am immediately accepted into this learning community without question. Mae introduces me on the first day as "Elisabeth who is here to do research and observe how I teach you." The children call me by my first name and chat with me whenever appropriate. They do not ask questions about my research but are interested in my laptop and ask questions about it. Because I do not wish to interfere with the existing learning environment in the room, I try to blend into the culture that is already established. I am satisfied that Mae, the intern and the students are comfortable with my presence in the room. After I complete the data collection at Cloudberry, I stop by the school and Mae indicates that she misses my not being in the room anymore. I interpret this to mean that Mae enjoyed my presence in the classroom.

Mae's mother and sister are also teachers and at one time, all three taught at the same school. According to Mae, this was a positive experience. Mae has taught elementary students for 20 years. During the 2000-2001 school year, she received the Alberta Excellence in Teaching Award. This accomplishment was accompanied by recognition in print media and by celebratory events sponsored by the school district and the province. During a classroom visit, a student nurse comments, "Mae consistently teaches to the students' developmental level" (personal communication, March 21, 2001).

Mae's skills as a veteran teacher are apparent in the way she keeps the students actively engaged and the ease with which she handles the many transitions in the classroom. Mae incorporates various teaching approaches during the lessons. These

approaches include, but are not limited to, instruction based upon MI theory, teaching for understanding, cooperative learning, project-based learning, and technology integration.

Mae exudes a friendly and cheerful disposition and thrives in an environment where students are engaged in group work or are presenting projects to classmates. In our third interview, we discuss enjoyable teaching moments.

> MK: I love presentations because I get to see what the students can do and how they speak and what they've come up with and their ideas, and it's always surprising. This morning, I was trying to provoke them to say, in their speech, something that would interest the audience. Yasemin, for example, did an almost two-page speech about the purple book. She described how she had created a diary to complement the book. She included information about the characters and the author. It was awesome and I didn't tell them to do all of that.
>
> ET: Tell me about other times when you loved what was happening in your room?
>
> MK: Well, I am body [short term for body smart], very kinesthetic, so I like doing things like that. Every morning we're up and standing and we do things, and I love that. Dances, I'll dance along with them. (III, pp. 13-14)

I notice during presentation times that Mae is excited; her face is animated and she taps her foot. The energy in the classroom is infectious with the students riveted on the performance by their peers.

In my role of observer, I am amazed at the diverse activities in the grade three room. A deliberate effort has been made to incorporate multi-faceted learning experiences for the students. For example, the computer in Mae's classroom is used to tele-collaborate with grade three students in a different part of the city. This activity has been facilitated by Telus, a major telephone company in western Canada. Mae is one of eighteen teachers selected to participate in the Telus Learning Connection Project. In this project, Telus provides funding for teachers to obtain professional development and

computer hardware to encourage the use of interactive technology in classrooms. I watch as the students use technology to communicate with students across the city about a bridge-building project. The students from the two schools show each other their bridges through video-cam and discuss their weight-bearing capabilities. They laugh at the video-cam's delay in sight-to-sound, since the sound arrives moments after the image on the computer screen. I find this novel communication mode intriguing yet the students accept the face-to-face distance interaction as part of every-day life. This innovative learning experience is due to Mae's initiative and her interest in technology and aligns with Gardner's proposed notions of bringing reality into the classroom.

Another example of multi-faceted learning is that the class follows two adventurers in their journey across Greenland. In the spring of 2001, the two travelers came in to talk to the students about the upcoming journey, and there was a write-up about it in the local newspaper. Information about the Greenland journey is posted on the wall of the classroom. These experiences, in addition to the engaging activities that Mae's and her intern plan for the students, make for an interesting learning environment for the grade three students.

I talk to Mae about her teaching philosophy since Phase I of my study examines how the teacher's philosophy of education aligns with MI theory's philosophical underpinnings.

Philosophical Phase

Having fun in a constructivist framework.

ET: What are your beliefs and values about learning?

MK: …getting the kids to do things, active. Getting them to experience it, getting them to do the "aha" moments. I provide opportunities for my

students to do that, and in order for them to have those experiences, you have to be creative in your teaching strategies and allow them to experiment and share, be accountable, and maybe fail.

ET: When you say that you believe that kids should be active, what do you mean by that?

MK: They should have fun, I really do believe that. Yet, they need to get to work and be accountable…active participation most of the time and that's the challenge of any teacher because that's the only thing that's going to buy the kid in. (I, pp. 3-4)

Later in our discussion, Mae reinforces the importance of having fun.

MK: I'm a hands-on, I like to have fun, in fact, I *have* to have fun otherwise it's boring. That's why my philosophy is that way; I stem everything from that belief because that's what has worked for me. (I, p. 12)

I note in my classroom observations that the students in Mae's room are rarely idle. They have many opportunities to "mess around" with their learning. They work in small groups; they talk to each other; they giggle. At times, I wonder how a particular activity might lead to increased knowledge of the subject but then, to my surprise, the students demonstrate their learning in ways that indicate that this is *their* constructed knowledge. I marvel at the high quality of their understanding. Although Mae does not mention the term "constructivism" in our interviews, her responses to my questions and the classroom observations indicate that this teaching approach is employed in the grade three room. Mae wants the *students* to come up with the "ahas." She believes that she cannot give understanding to the students. Instead, they must gain understanding through their own experiences and their reflections upon these experiences.

Schwandt (1998) notes that knowing is not passive but active. "Constructivism means that human beings do not find or discover knowledge so much as construct or make it. We invent concepts, models, and schemes to make sense of experience and,

further, we continually test and modify these constructions in the light of new experience" (p. 237).

Scherer (1999), in an interview, notes that Gardner "advocates schools where students delve into deep epistemological questions. He calls that approach to education 'the understanding pathway'" (p. 12). Gardner, in the same interview, elaborates on constructivism,

> The crucial tension between 'constructivism' and 'behaviorism' has to do with the view of learning that is embraced. In a behaviorist class, one focuses on the answers desired and tries to shape responses until they resemble a prototype. What goes on inside the head, if anything, is irrelevant. In a constructivist classroom, students continually try out ideas and practices for themselves and see where they work and where they prove inadequate. (p. 13)

Gardner similarly, during a plenary session at the Project Zero Classroom Institute 2001, argued that constructivism is a desirable teaching approach, yet one that is rarely endorsed by governments (personal communication, July 2001). One might surmise that due to the political appetite for standards and standards-based assessment, it is easier to assess "facts" than "understanding."

Valuing students' strengths. Mae and I discuss the importance of the affective domain, and how it relates to learning.

MK: Kids have to know that they are recognized, that they are valued by the teacher. Through fun or through liking what's going on, the students feel valued or honored or recognized.

ET: Would you say that MI theory helps you value the students?

MK: Yes, absolutely. Value and honor them, and recognize that they might be a little different but they are still really smart. We always say, "How are you smart?" not, "Are you smart?" (I, p. 4)

Two major tenets of MI theory are that (a) people are intelligent in different ways, and (b) the different intelligences are valuable (Gardner, 1983/1993a). In the classroom context, this view of intelligence has significant implications. If every student were intelligent, all members of the learning community would share in the rewards that are traditionally bestowed only upon the "brightest" students. In addition, if classroom instruction were to include activities that address different intelligences–traditional activity distribution favors linguistic and logical-mathematical intelligences–success is facilitated for students with strengths in dissimilar areas.

Allis (1999) suggests that Gardner's "theories flow from his humaneness. Gardner is a mensch" (p. B4). In the same article, Allis quotes Traub, a journalist and Gardner critic, "Gardner is, at bottom, a moral philosopher; he wants to change the way we measure human worth." In the classroom context, the notion of valuing students has proven important for teaching practice. Teachers who expect their students to do well are more likely to be effective practitioners. Thomson, an award-winning professor who received the 2001 top teaching award at the University of Alberta notes, "The key is to try to find out what [students] are really good at and encourage what they do well, rather than finding fault in the things they don't do well" (in Northcott, 2001, p. B7). Because Mae is an award-winning practitioner who also believes in recognizing and valuing students' strengths, I continue to probe her views on MI theory.

Important facets of MI theory.

ET: What do you think is the most important feature of MI theory?

> MK: The recognition that we are all different but we are all smart. At Cloudberry, we have a high English as a Second Language (ESL) population and we notice on achievement test results that the area of greatest need is background knowledge, and no wonder because the students all come with varied background knowledge. Still, the feeling-tone toward the kids that can't speak English is good because the other students know that they are smart in different ways. (I, p. 15)

Valuing people as smart but in different ways is a recurring theme at Cloudberry School. It is demonstrated in the accepting attitude that I encounter, as I become part of the school during the data collection phase. Although I am an "outsider," I feel part of the school because I am treated in a friendly and respectful way by the staff and students. I notice that the students are treated in a similar manner. Jill, the current principal, notes that people of different color and race comprise Cloudberry and thus, differences in backgrounds and appearances are accepted. This humane attitude is also apparent in the valuing of each student's intellectual capacity. Mae's belief that "we are all different but we are all smart" (I, p. 15) is evident in the respect that she bestows upon her students. It is demonstrated through the diverse activities that she provides to facilitate success for her students.

Decision to use MI theory. In Canada, each province determines the "knowledge, skills and attitudes" in the provincial curriculum (e.g., Alberta Program of Study) that students must acquire, but the teacher determines *how* these objectives will be met. In this context, MI theory can be seen as a tool for delivering the provincially mandated curriculum. Gardner notes that the theory is useful in promoting understanding of curricular concepts.

> We know people truly understand something when they can represent the knowledge in more than one way. We have to put understanding up front in

> school. Once we have that goal, multiple intelligences can be a terrific handmaiden because understandings involve a mix of mental representations, entailing different intelligences. (in Checkley, 1997, p. 11)

Mae and I discuss her decision to use MI theory.

> MK: I like to do what's best or at least try to provide what's best. That's why I bought into MI theory because I saw it working with kids. I saw kids having fun with language or putting it into a song or writing about it quietly, showing their preferences. I saw that the theory worked. (I, p. 12)

Student engagement provides the kind of feedback that teachers use to monitor the effectiveness of their instruction. Throughout the day, teachers make hundreds, possibly thousands, of split-second decisions about events in the classroom, for example, whether an instructional approach "worked" or not. These decisions are part of the continuous feedback loop that helps teachers evaluate their practice. When Mae notes that "the theory worked," she bases this evaluative statement on her knowledge of teaching and learning, her experience as a teacher, and the students' responses.

In my role as music teacher, I was always pleased when my students engaged in musical activities outside the classroom. One of my students, David, used to bring me musical compositions in a stamped envelope. When I voiced concern over using new stamps on the envelopes, David assured me that he had discussed the matter with his mother and they had agreed that this was important work, which warranted new stamps. This type of feedback, along with other assessments, assured me that my practice worked.

I am interested in knowing if there were any "aha experiences" that affected Mae's decision to use MI theory. Did certain experiences make a particularly strong impact?

> ET: Can you think of an experience that strengthened your belief that MI is good for kids?

MK: I had a boy who was struggling with behavior, with social skills, but he was very bright. The rest of the group didn't recognize that because of his lack of social skills but he could write beautifully, amazingly beautifully. By highlighting his talents with words and recognizing him in front of the class, the other students changed their attitude toward him. They recognized that he doesn't only fool around but he has a very good way of writing things down.

This year, I have a group of girls that is really music smart. Each time we put something into a rap, they go out at recess and bring things back. They say, "we made this up," and that's when I know they're connecting and they're remembering. They have fun with it and they're learning. (I, p. 2)

Although Mae often speaks of her students as having fun, the intent of this enjoyment is to assist the students in learning the required objectives. Mae stresses that her teaching stems from the curriculum, "always what the kids need to demonstrate and how they can demonstrate it. They can do it in this way; they can do it in that way … providing them with this [MI] material. But always looking at what they need to achieve, never doing fun, fluffy …" (I, p. 20). Although this statement at first seems paradoxical, considering previous statements about having fun, it is the intent behind the activity that is at stake, not the activity itself. Whether one builds an igloo of sugar cubes because it is a fun activity that has been done in the school for the past twenty years, or whether the building of an igloo aligns with the curriculum is what needs to be examined.

Mae views her students through an MI lens. She realizes that they have different strengths and she uses these strengths to get to know them and to connect with them. The boy in the first account displays linguistic intelligence and Mae highlights this strength to demonstrate to the other students that he is intelligent in spite of his lack of social skills. In the MI framework, the recognition of this strength helps him to gain status in the classroom and to overcome the social stigma that has been placed upon him. In the second case, the musical intelligence that the girls display is recognized as valuable

because of Mae's understanding of diverse intelligences. Instead of downplaying this skill as non-academic and thus non-important, she recognizes it as an intelligence and values it. Thus, she uses MI theory to frame her understanding of the students and their abilities.

The feedback that Mae receives in the form of student success and student enjoyment of learning motivates her to continue applying the theory, however, using the theory is not always easy. Our conversation turns to challenges of using MI theory.

> MK: The challenge of implementing MI is not the strengths that you have but it's the teachers' weak areas. You have to teach to the children's strengths but the teacher has to work on his or her areas of weakness. That's hard because you'd want to take the easiest route. (I, p. 13)

Consequently, a teacher who is uncomfortable with the interpersonal intelligence might choose to incorporate activities that emphasize individual work rather than group work. Similarly, a teacher who is ill at ease in the musical sphere would simply exclude such activities in the planning phase.

Mae uses the theory because it fits with her beliefs, values and goals, yet the initial reason for embracing MI theory is due to decisions made by the staff at Cloudberry School in 1995. When Mae arrived at Cloudberry in 1996, MI theory was already part of the school culture. Thus, when she accepted the position at the school, there was an expectation that she would implement MI theory in her classroom. Mae mentions that she was comfortable with applying the theory since elements of it were used at her former school.

> MK: MI theory placed a label. It wasn't really anything new, other than there was confirmation that there was some research done. We were doing things through the year, recognizing the fine arts or recognizing different talents in kids. (I, p. 1)

When Mae encountered MI theory at Cloudberry, the transition was comfortable.

ET: Was it an easy transition for you to start to implement MI theory?

MK: Yes, I would say very easy. It just labeled everything. (I, p. 1)

Using MI language. The labels that Mae mentions refer to the MI language used by staff and students at Cloudberry School. This language permeates the school culture. It is apparent in artwork labels in the hallways, in student presentations at school assemblies, in parent newsletters, and in teacher and student discourse. The teachers use Armstrong's (2000) "child-friendly" intelligence terms. Instead of Gardner's terms, linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist intelligences, Armstrong renames them word smart, math smart, picture smart, music smart, body smart, people smart, self smart and nature smart. The teachers and students at Cloudberry School use these terms on a day-to-day basis. As a result, MI language offers teachers a new way of talking about teaching and learning. The teachers view the students through an MI lens. Similarly, it assists the students in becoming aware of different "smarts" and their own areas of strengths and weaknesses through daily classroom activities, school-wide assemblies and a shared school culture.

The mediation between Gardner's theory and the students takes place on different levels. On one level, teachers try to make sense of the theory and reconcile it with existing knowledge and experiences (Philosophical and Interpretive Phases). In the Philosophical and Interpretive Phases, Mae's readings, personal reflections and collaboration with colleagues connect the theory and the students. On another level, teachers apply the theory in their classrooms to assist students in acquiring the required skills, knowledge and attitudes (Practical Phase). In the Practical Phase, Mae's plans and actions connect the theory and the students. Early MI efforts at Cloudberry School

indicate that a systematic mediation process consisting of juxtaposed interpretation and classroom application is used to implement MI theory. I explore the Interpretive Phase in the following section.

Interpretive Phase

Cloudberry School is unique in that it has had several principals who have seen themselves as "instructional leader" with a vision to enhance student achievement. In 1995, the time of initial MI implementation, the existing principal was considered progressive and a catalyst for change. Case study II describes this period in detail since the grade six teacher was part of the early change effort. When Mae started working at the school in 1996, she found herself immersed in school-wide professional development focusing on MI theory.

MI demonstrations at assemblies.

MK: When I came [from another school], we took one intelligence each month and we read a chapter in the book [Campbell, Campbell and Dickinson, 1996] and then we had a meeting where we discussed ideas from the chapter, or highlights of the chapter. We brought a work sample, some student work, to demonstrate that smart. We focused on one smart every month. This was my first year and it was *highly* stressful because we were accountable. A team of teachers took one smart and we were responsible for doing the assembly, teaching the whole school about that smart. My part was art smart, so of course I did it with Charmaine [the art teacher]. We had weekly assemblies where the smarts were demonstrated and labeled.

ET: Would you do presentations four times in a row, for a whole month?

MK: No, we would do it intermittently, but every week we had assemblies with the students. Beth [the principal at the time] was fabulous. She had the kids introduce the demonstration and they would label it as to what their smart was. That not only taught the kids the lingo but it was professional development for me *all* day long. Each teacher had to sign up for thirteen assemblies during the course of the year. It forced us to do the reading, buy into the idea, whether or not you thought it was good, and it also put

> the theory into practical application so you and your students could demonstrate something. (I, p. 7)

Although Mae found the accountability stressful, she notes that the principal "was fabulous." In spite of the challenges of learning about MI theory and its practical application, Mae appreciated her newfound knowledge; "it was professional development *all* day long." Mae mentions how the intelligences were "demonstrated and labeled" during the school-wide assemblies. During these assemblies, the teachers shared classroom practices as they grappled with the mediation process–how to reconcile between the abstract and the practical–specifically MI theory and the students in the classroom. The assemblies served to reinforce a common MI language among staff, students and parents. I ask about the effectiveness of the assemblies.

> ET: Were the assemblies good learning experiences?
>
> MK: That's right. It was true learning and that's why teachers didn't mind going. It was really good use of time.
>
> ET: …that's in a way where you learned most about MI, would you say?
>
> MK: Oh, it was *fantastic*. It was fantastic, and then I would see what my colleagues were doing and that's true recognition. They don't have to tell you how great they are, that's where I saw how Kerstin [grade six teacher] got her kids involved in creative ways. (I, p. 10)

During this early implementation phase, students, staff and parents learn about the theory together and it becomes embedded in the school culture. Mae notes that parents often attended assemblies since "it truly was a show, it was a performance of the students' achievements. It was really good" (I, p. 7). Parents thus become knowledgeable of the theory and support its implementation. I am curious about the demonstrations during assemblies. I ask Mae to expand.

> ET: Tell me about a specific assembly.

MK: I remember a cool one because the kids really liked it. I did body smart using rocks and minerals to demonstrate the three different types of rocks in the world. For igneous rocks, the kids made a body volcano and they spewed this one little girl up [laughter]. Igneous rocks are explosive and they come from volcanoes. To demonstrate metamorphic rocks, the kids hit one another–some were low and others high–because that's what metamorphic rocks do. Sedimentary rocks are layered and of course the kids love to lay on each other [laughter], so they were showing that. We made up a song to the tune of Happy Birthday to help the kids remember the different rocks. You're music smart so you'll enjoy it. (I, p. 8)

This quote illustrates "having fun" in the grade three classroom. It also serves as an example of Mae's joy in recollecting the demonstration on body smart; "the kids really liked it." Throughout our conversations, Mae is most animated when she describes "fun" learning experiences. It is obvious that the students' enjoyment brings her great pleasure.

I am interested in the song that the students created to help them remember the different types of rocks. Mae sings it to me (to the tune of Happy Birthday),

MK: Sedimentary rocks (2X)
They are caused by erosion
Sedimentary rocks.

Metamorphic rocks change (2X)
They change into different things (Mae interrupts her song, "that's what they came up with")
Metamorphic rocks change.

Igneous rocks are the explosive ones (2X) (Mae laughs)
Red hot magma comes from the earth's core
Igneous rocks are the explosive ones.

MK: They *really* remembered that.

ET: *Fabulous*! (I, p. 9)

I find it intriguing that Mae allows the students to retain the words of the original composition although the lyrics present some rhythmic challenges. To Mae, it is important that it is *their* composition. She respects what they construct and is sensitive to

their product; it is their learning. The students must experience the "ahas" and she uses MI theory as a tool to attain this objective. Thus, MI theory can be viewed as an instructional approach that Mae has added to her teaching repertoire.

Acting as a mediator between the theory and the students, Mae interprets and applies the theory in the context of her classroom. The rock activity focuses upon the bodily-kinesthetic, and to some degree, the musical intelligences. Although the primary objective is to teach students about rocks and minerals, as mandated in the grade three science curriculum, the objective for this particular assembly is to illustrate to the audience how MI theory can be used in practice. The assembly acts as a forum for school-wide sharing. Teachers have the opportunity to see what students in other classes do and they can subsequently adapt these activities to their own classroom settings. Since Cloudberry has only one class per grade level, the content of the demonstrations is grade specific but the type of activity is transferable. In addition, the assemblies provide feedback from students, colleagues and parents. Mae mentions various positive responses in our interview, for example, "the kids really liked it" and "a lot of parents came because it truly was a show." Thus, Mae gains further inspiration for interpretation and implementation of MI theory from the weekly assemblies.

Learning about MI theory at staff meetings. When Mae came to Cloudberry School, the existing staff had been exposed to MI theory for a little over a year. During the 1996-1997 school year, Mae's first year at the school, the staff continued to engage in systematic professional development to further their knowledge of MI theory. A primary resource was Campbell et al. (1996), *Teaching and Learning Through Multiple Intelligences*, from which the principal assigned monthly readings. Based upon the

assigned chapters, teachers discussed ideas for classroom instruction during professional development meetings. In addition, they brought student work to demonstrate how MI theory could be applied in daily practice. Thus, the interpretive phase and implementation phase were concurrently integrated. Teachers read about the theory, reflected upon the theory, discussed ideas from the readings, tested their ideas in the classrooms, and brought student work samples to share with colleagues during the following staff meeting. This learning cycle continued throughout the 1996-1997 school year.

Mae remembers another resource, (Lazear, 1994), because it was so practical, "I remember it because I can take the ideas from the book and use them in my classroom" (I, p. 6). Mae shows me her binder of MI journal articles that the principal assembled for each teacher. The binder reveals that the principal acquired current research articles for teachers to use as reference, and practical "how to" advice on the use of MI theory in classrooms.

I notice a cart in the staff room with additional MI books and audiovisual teaching aids. The cart has several shelves that are well stocked with resources. On the white board in the staff room is another example of the school-wide MI culture: a signup sheet for assembly demonstrations. Headings include the teacher's name and the smart to be demonstrated. Beside the assembly signup is a current *Globe and Mail* newspaper article (Fine, 2001) about a school in western Canada that has used MI theory since the early 1990s. I marvel at the wealth of resources and the prominence of MI throughout the school.

Administrative support. I wonder about the driving force in the early implementation stage. Who was the catalyst for change? Mae tells me about a study trip

to "the multiple intelligences school" (I, p. 14) in Richmond, British Columbia during the 1994-1995 school year. The visit made a strong impact on the staff members.

> MK: Every time we do an inservice, she [Kerstin] talks about that visit and how the school structured its day around MI theory. That would be *so cool*, but our school system is a little different so it's not possible. That's one step further than the assemblies, that's where Beth [initiating principal] would just love to … fly. (I, p. 14)

I ask Mae to tell me about Beth's role during the 1996-1997 school year, Mae's first year at Cloudberry.

> ET: Was Beth the main leader for the study group?
>
> MK: I think so. Well, she was the facilitator. She didn't really talk at us. We each went around the table and we were expected to share something about the chapter [from Campbell, Campbell & Dickinson, 1996] that was a highlight for us or that was really good, and then we shared student work.
>
> ET: You read the book and then you talked about it at staff meetings, which were once a month?
>
> MK: Yes.
>
> ET: How much time did you spend on MI during the staff meetings?
>
> MK: All of it, the hour and a half.
>
> ET: There wasn't a lot of discussion about problems or what to do with the discipline policy?
>
> MK: No, that was left for operational meetings. (I, pp. 10-11)

It is important to note that this type of systematic professional development took place at Cloudberry School over the course of several years. It was not simply a three-month effort to "get the recipe" and implement it. I suspect that Beth realized the commitment required for enduring change and was willing to invest the time and effort in ensuring lasting effect.

A desired role of principals in today's school world has been identified as that of "instructional leader," however, it is a role that is easily replaced by that of "plant manager." In the plant manager model, the operational challenges of the plant oftentimes eat into teachers' professional development. As an example, staff meeting time is oftentimes absorbed by solving school-wide issues and problems, for example, hallway supervision or student behavior. It therefore takes considerable determination to structure common staff time for longitudinal professional development. In the case of Cloudberry School, not only was time set aside for developing exemplary teaching practice, but a systematic approach was used. Additionally, the principal initiated a "high accountability" model for teachers to demonstrate their new learning. In spite of this accountability expectation, which could easily be viewed as yet another teacher responsibility, Mae remembers the experience as positive, "Beth was fabulous … it was professional development for me, *all* day long." (I, p. 7). In reflecting upon the principal's role in implementing MI theory at Cloudberry School, I recollect numerous examples of the administrator's influence on the change process. Below, I list various areas in which the principal's actions significantly affected the implementation of MI theory. While I have attempted to put the activities in chronological order, some of them occurred simultaneously.

The principal demonstrated her commitment to developing an MI school culture in the following ways. First, Beth initiated a study trip to a multiple intelligences school so that teachers could see what the theory looked like in practice. Second, Beth acquired various teaching resources and distributed them to teachers. She provided each teacher with a thick resource binder and a personal copy of *Teaching and Learning Through*

Multiple Intelligences (Campbell et al., 1996). In addition, she placed numerous teaching aids in the staff room. Third, Beth structured systematic professional development through study groups and teacher demonstrations. Fourth, Beth encouraged the visual identity of MI theory through art displays in hallways and in the entryway of the school. She hired an art specialist who offered first-class art classes for the students. It is common knowledge at Cloudberry that the student artwork displayed throughout the school elicits numerous compliments from parents and other visitors. Fifth, Beth supported the use of a common MI language that was age-appropriate for elementary school children. Sixth, assembly time was set aside for MI demonstrations that mirrored the work taking place in the classrooms. "Beth was hoping that whatever we were doing in the class would be the best thing to present their learning" (I, p. 12). The demonstrations were not artificial showcase pieces but samples of daily activities that demonstrated the use of MI theory in classrooms. Seventh, during the 1997-1998 school year, Beth structured the time schedule so that experienced teachers could mentor new teachers in the use of MI theory. According to Mae, "a new staff member would be paired up with me and I might do something with two classes to model an MI lesson" (I, p. 11). Thus, the continuity of the school's MI culture was encouraged through the mentoring of new teachers.

Although the scope of this study does not permit a comprehensive review of the principal's role in the change effort, I believe that it is unlikely that MI theory would have been implemented at Cloudberry School without the principal's initiative. The implementation is in its seventh year during the time of my data collection, the 2000-

2001 school year, which is Mae's fifth year at the school. Our conversation turns to challenges that teachers might encounter in the Interpretive Phase.

Challenges and decision-making. Although staff professional development is a useful tool in the change process, the teacher ultimately makes the decision whether the new initiative will be implemented in the classroom. It is clearly possible for someone to go through extensive professional development, only to go back to the classroom and return to existing practice. For example, the "implementation dip" (Wolfe, 2001), which often appears when trying to change existing practice, can lead to frustration and discouragement. This phenomenon can be illustrated in a sports context where an athlete has been shown, and has practiced, a new, more effective procedure. However, in returning to regular training, the new procedure proves cumbersome and gives inferior results due to a lack of mastery. Thus, the athlete returns to the old, comfortable habits. Likewise in the classroom, a teacher may experience the implementation dip when trying out a new teaching strategy. There are rough spots when planning for instruction, the students respond differently, and it takes more time.

I ask Mae to describe some of the challenges that she has encountered.

> MK: A lot of people who learn about MI theory think you have to do all eight intelligences in one lesson. I don't think the theory says that because it's ludicrous. That's why sometimes it might be a turn-off for people because they'll see it and say, 'That would never work.' (I, p. 18)

We discuss how often the eight intelligences should be addressed and agree that no formula exists since the theory is a framework rather than a prescription. The teacher acts as a mediator between the theory and the students, interpreting and implementing the theory based on numerous interrelated factors. Although numerous teaching aids provide detailed lesson and unit plans, these comprise the work of MI theory translators and

interpreters. The theory itself is not a recipe; it provides a conceptualization of human intelligence rather than a program for classroom instruction.

Mae is not concerned about implementing the theory in a prescribed way. To her, it is a non-issue. Of importance to Mae is how the theory can serve as a tool in her practice. Mae has taken ownership of MI theory; she shapes what it looks like in the classroom. She interprets it; she modifies ideas from translators, and she ultimately decides what form the theory will take in her classroom. MI theory has become part of her professional knowledge.

In our discussion, Mae describes other challenges.

MK: It's easy not to do MI. I don't know if that's going to help your paper but it's easy not to do.

ET: No, no, this is good to hear.

MK: It's easy to fall into just the traditional teaching.

ET: Tell me about that. Give me an example of that.

MK: The teacher talks. The teacher sets up the lesson, talks for ten minutes and then gets the kids to work, in paper-pencil type activities.

ET: That's easy?

MK: That's *easy*! And that's what beginning teachers usually want to do because it's most successful and it's easy.

ET: It looks most successful at least.

MK: Right, but for those kids who need to move, the production of work that they get over time is not as good. The quality isn't there. I wonder if they retain it. But asking them to be active, not knowing what the response will be, for a new teacher is scary because that would mean they're not planned. They don't know what to say if a child says something unexpected, they don't know where to go. (I, p. 19)

Mae has chosen to implement MI theory in spite of its challenges. She is comfortable in a constructivist framework because of her extensive teaching experiences and because she believes that the students will produce better work over time.

Interestingly, one of the criticisms of MI theory has been that it is too vague to be useful in the classroom. Because MI theory does not provide a program or a recipe, some critics feel that it is impractical for teachers to use. However, in my discussion with Mae, it is apparent that she does not want a recipe. She uses MI theory to add to her existing knowledge of teaching and learning and incorporates the MI framework in her current teaching practice. While some teachers are satisfied with the *appearance* of learning, for example, students sitting quietly at their desks reading or writing, Mae is concerned about the quality of the students' work and their knowledge retention. These objectives are paramount in Mae's teaching practice and influence her decision-making. While these objectives might seem self-evident, the literature suggests that the traditional teaching model–the one that Mae considers easy–is used as much for classroom management as for effective teaching practice. In the Practical Phase, I explore how Mae's selection of activities becomes an integral component of the mediation process.

Practical Phase: Planning

The practical phase consists of three main components: planning, application, and reflection.

Planning for instruction. Mae uses an integrative approach in her classroom. Thus, several subject areas are often addressed in the same lesson. We discuss how she uses MI theory in an integrated approach.

MK: Throughout the unit of study, I would ensure that we have done all the intelligences and that I have planned activities that enhance particular

intelligences. At some point, I give the students the opportunity to demonstrate their knowledge or skills in one of the eight ways, as a kind of project.

ET: What length of time is a unit?

MK: A couple of months for sure. I integrate the unit throughout everything. For example, in the rocks and minerals Science unit we would read and write in Language Arts. In Math, we would measure rocks. In Social Studies, we might discuss old things and do a time line. We would chart when the earth was made and what was happening in history, up to the volcano that just erupted in Hawaii. We make a human time line in class, so it's cool. (I, p. 16)

Using the provincially mandated curriculum, Mae plans the unit according to the required learner outcomes. She determines what knowledge, skills and attitudes the students need to demonstrate and then chooses activities based on (a) past teaching experience, (b) ideas gained from colleagues, or (c) exploration of MI teaching resources, for example, Campbell et al. (1996) or the MI resource binder.

Some of Mae's planning documents consist of graphic organizers in which various activities are placed in eight different spaces marked word, math, picture, self, people, nature, music and body (see Appendix C). Since Mae is an experienced teacher, she does not write out lengthy unit plans but keeps the information to point form in the graphic organizer.

ET: Tell me how you plan for instruction.

MK: A unit first, the bigger picture, and then make sure you have all the eight intelligences, and then the week, Monday to Friday. What are you going to do in a unit, or with integration? For example, in the rocks and minerals unit, I put all the eight smarts, and *this* fits in that smart, and *this* fits in that one [Mae looks down and with her hands plugs activities into an imaginary chart on the table]. Okay, what are we going to achieve today? Oh this one. This smart is going to be worked on today. (I, p. 21)

Mae mentions how she includes time for review in the planning phase since it is "the most powerful thing you can do" (I, p. 21). I ask for examples on how she plans for review.

> MK: I plan for review in different ways. For example, 'Show me, by the time I count to three, we've been talking about rocks, we've talked about the earth's core and how hot it is, when I count to three, go somewhere in the room and show me a tableau of something that we've talked about, say the earth's core or the rocks.' Give the kids some think time and then go.
>
> ET: Wow! That's so powerful.
>
> MK: And it's so easy, it's powerful and it's quick, and they love it because it's fun. They get to get out of their desks; they get to move around. That's retention; that's where the kids make the connections. I think that's why I get good results because I do take time to review. (I, p. 21)

In this tableau exercise, the students demonstrate their understanding of a concept through the bodily-kinesthetic intelligence.

This teaching practice aligns with Gardner's notion of using MI as a handmaiden to encourage understanding through "representations, entailing different intelligences" (in Checkley, 1997, p. 11). Mae's grade three students are continuously encouraged to find meaning using different intelligences. Whether it happens through a written assignment, sharing knowledge with a friend, creating a musical composition, or demonstrating a scientific concept through a tableau, Mae uses MI theory to facilitate meaning making. The systematic approach that she uses when planning for instruction indicates that this approach is not happenstance. Mae deliberately includes activities that address the eight intelligences.

Interestingly, Mae often refers to brain research in our discussions. For example, she explains that "the brain research that's going on says never to do brainstorming first

thing in the morning because if the child says something incorrect, the child will remember it more easily because it's the first thing" (I, p. 22). Similarly,

> MK: I plan for body smart activities. In the lesson this morning I had the students standing up and when they answered, they could sit down. I used that technique because I wanted to hear from everybody. I didn't want anyone falling asleep. All the brain research says that you have to stand up every so often. (I, p. 9)

I query Mae about reasons for using the bodily-kinesthetic intelligence.

> ET: Is it because of MI that you're doing all these bodily-kinesthetic activities, or did you always do this much bodily-kinesthetic?
>
> MK: No, I do more. That's a good point too. I do more because I see that it's successful with the young kids, because in grade three, the development, mostly they are "body." They like body, and like to use it. They like rhythm at this stage. (II, p. 13)

Although Mae enjoyed bodily-kinesthetic activities before she encountered MI theory, she currently plans more "body" learning experiences because of the supportive stance of the theory. We discuss how the theory influences her to alter instructional practice in other areas.

Altering and refining previous practice. Mae explains how MI theory has caused her to plan for student reflections in order to incorporate the intrapersonal intelligence. "In my previous years of teaching, I never did ask the kids to do a lot of self-reflection or evaluation of their own or someone else's work, giving them a compliment or an opinion. Now I give the children more opportunities to tell something that's inside" (II, p. 17).

Additionally, Mae mentions how MI theory has inspired her to place a greater emphasis on active learning.

> MK: Active participation isn't new, but I use a whole lot more of that, and that gets them thinking about what they know and using the word smarts more

often in the day. If you can engage the kids *all* through the day, they are apt to learn more.

ET: And do you feel that this change has come from MI specifically?

MK: Yes, because if they are active, either doing something with their body or writing something down or writing in a group to create something, they're active and they will probably retain it. (II, pp. 17-18)

While the casual observer in Mae's room might see a busy place with a flurry of activities happening simultaneously, a more careful observation reveals that considerable knowledge and careful planning have been combined to create a rich learning environment. I speculate that Mae tests the educational usefulness of MI theory through various learning activities. If they work, she continues to use them.

Using MI resources in the planning phase. Mae and I review MI resources at Cloudberry School. We examine a well-used book from New City School, Missouri. It consists of teacher-generated MI activities accompanied by possible extension possibilities (e.g., enrichment activities or topics related to the learning objective). Mae explains that she chooses those activities that support the Alberta grade three curriculum. She finds the book helpful since "it really gave me a grasp of things" (II, p. 1). The book is practical in nature and shares MI activities that teachers have tried in their classrooms. The New City School is listed as author.

Mae and I discuss Campbell et al. (1996), and the resource binder that Beth, the principal who initiated MI, provided to the teachers. Mae explains how these resources have assisted her in generating ideas for applying MI theory in the classroom. For example, one book suggests an introductory activity in the beginning of the year in which students bring their favorite things to school. Mae mentions that she likes this activity but limits the items to those that can be contained in a pillowcase. By examining the items,

and listening to the students talk about them, Mae gains an initial understanding of the students' strengths. Another strategy used for this purpose is the Student Interest Inventory (see Appendix D). Emig (1997) uses a similar approach in her high school classes. She tries to complete a multiple intelligences inventory for every student during each quarter. "This information helps students see how they are doing and gives them some personal insights. The form can also be an effective diagnostic instrument in team meetings, parent conferences, and discussions with individual students" (p. 48).

Practical Phase: Application

Providing choices in the classroom. Gaining knowledge of the students' strengths is important to Mae because it helps her understand why they behave in certain ways. For example, this knowledge explains why a student prefers particular activities to others, and what encourages a student to "buy into" assignments. Thus, Mae can structure her practice to meet the learning needs of students with strengths in different intelligences. By providing choices in both the "input" and "output" phases of learning, she believes that the teacher can facilitate learning for a greater number of students. An example of providing choices in the classroom might be as simple as working alone or with a partner. While the intrapersonal student is likely to choose working alone, the interpersonal student thrives on partner or group work. Mae notes that she endeavors to include a nice blend of activities in her lessons.

Mae also stresses choice in demonstrating understanding of knowledge and skills, the "output" phase. To her it is more important that the students *understand* the learning objective, than that they demonstrate it in a prescribed way.

> MK: Students may have a preference [in demonstrating their learning] and as a teacher I would say, 'Here is the idea, if you really like to do it this way

> and would remember it this way, and it would help you to do it this way and you would like to perform it this way, that would be okay.' But you have to present it to the class in a way that shows your learning. (II, p. 5)

While it would be naïve to expect students to work only in their areas of strength, one might argue that the effective teacher endeavors to draw on students' strengths to facilitate optimal learning in all areas.

Some researchers believe that disregarding students' strengths can lead to misbehavior. Tom Hoerr, an MI translator, argues that students tend to display misbehavior in areas of strength (personal communication, March 2001). For example, a strong linguistic person chats incessantly with peers, a visual-spatial student doodles endlessly, a bodily-kinesthetic child fidgets and moves around. Mae notes a similar phenomenon, "the behavior, and maybe I'm out to lunch, but the kids who have problems with behavior are really people smart. They really thrive on working with a partner or being able to talk to their partner. The challenge is to keep them on task" (I, p. 25).

Using community resources. Looking for evidence of apprentice-style learning or museum projects that bring reality into the classroom, I ask Mae to tell me about the use of community resources. She notes that an APEGGA (Alberta Professional Engineering and Geologist Association) geologist visited the grade three classroom to share findings about rocks and minerals. Similarly, another expert came in to talk about bridge building. Mae expands on the bridge building project (examples of intelligences used in this project have been included in brackets).

> MK: They built bridges [logical-mathematical, spatial, bodily-kinesthetic] of popsicle sticks. They had to use 100 popsicle sticks and one bottle of glue only. It was a group job [interpersonal] and after they built it, they decorated it [spatial]. They had to make a rap [musical] and they had to use at least three things that were talking about bridge construction, so they had to use three good words [linguistic] like girders or triangles. They

> had to show that they knew something about bridge construction and they loved it. They loved sharing it; they loved doing it. Some of them went home, did it on power point, and brought it to school. (I, p. 28)

When I wonder about the students' ability to use power point, Mae mentions that the grade three students find it easy to do.

> MK: I know that they are excited so therefore they're going to do it, and they're allowed to do it in a neat way that might be more meaningful for them. If I ask them to go and write a report about bridges and they aren't very word smart, they would have a hard time. They would go home and have a hard time. The parents would be unhappy because the child is not happy. (I, p. 28)

In the bridge building project, Mae deliberately incorporates various intelligences in the *building phase*. She plans for instruction with the intent of addressing multiple intelligences, and structures activities to allow for different strengths to come to the fore. In the *reporting phase* of the bridge building, Mae provides choices for the students to demonstrate their understanding of the learning objective. She notes that not all students are word smart and thus provides alternative forms of reporting, such as power point, to encourage success for those students who struggle with traditional forms of report writing. However, I note in my classroom observations that all students engage in daily writing exercises. The writing component of the linguistic intelligence is by no means neglected in the grade three classroom.

The Telus Learning Connection Project is another example of using community resources to provide rich learning experiences. Virtual reality enables the students to observe and to communicate with peers in a different location who engage in similar activities. In the tele-collaborative project, it is apparent that technology has moved from being a discrete subject, "computer" on the weekly schedule, to a tool used for

communication or for research purposes. Mae mentions that MI theory has enhanced the creative component of her teaching repertoire.

Creative use of MI theory. Reading comprehension is a common learning objective throughout elementary school. A traditional reading comprehension activity might consist of reading a passage and answering questions on a worksheet. Mae, however, creates opportunities for the students to use more than the linguistic intelligence to improve upon their understanding of text. She incorporates various intelligences to develop reading comprehension. Examples include talking in small groups [interpersonal] about the reading, or creating a tableau [bodily-kinesthetic] from a scene in the passage. Mae tells me about a recent movement activity.

> MK: We made up a dance for a story, a story called Smart Prince Alex. It's about a boastful prince who wanted everything, so we made up a dance of movements. Prince Alex gets up in the morning, he brushes his teeth, he flosses, and they could relate to those things, so that was sequencing in the story. They *loved* it. Every time we had a guest in, they would say, 'Could we show them the dance?' That's how I know they love body stuff. If I ask them to go back and summarize that story, they could summarize it in writing because they have the outline from the dance. (I, p. 28)

In this example, Mae uses MI theory as a tool to develop language skills. She incorporates bodily-kinesthetic intelligence to develop sequencing skills [logical-mathematical] and the ability to retell a story in chronological order. Whereas Mae previously might have included movement activities because of her aptitude in this area, she now views bodily-kinesthetic intelligence as an integral component of MI theory implementation. Thus, the theory provides both a theoretical framework that explains how students learn, and research-based support for the inclusion of movement activities. Mae notes in our first interview that MI theory "placed a label" and offers "confirmation that there was some research done" (I, p. 1).

Barriers, problems and dilemmas.

Teaching encompasses daily problem solving of questions such as: how does the teacher meet the students' needs; how does the teacher engage the students; and how does the teacher use various instructional approaches in order to facilitate learning? I reflect upon a statement that Mae makes about using MI theory when teaching math. She observes that "math is math, and it's hard to do anything else with it" (II, p. 6). One might argue that certain subjects lend themselves more to an integrated approach whereas math is primarily a logical-mathematical undertaking. Mae nonetheless identifies the use of body smart and word smart in her math lessons.

Mae indicates that she finds the naturalist intelligence difficult to understand.

MK: The naturalist intelligence is probably the most difficult for me to understand at this point.

ET: Is that because he [Gardner] added it later, do you think?

MK: Could be, and I didn't get a chance to think about it for a long period of time or share it with my colleagues.

ET: Why does it seem difficult to you?

MK: Well, it seems "simple." If you like to be outdoors or if you like working with anything in nature, then that's the naturalist intelligence but I couldn't figure it out. In grade three, most of them play outside so they would all be naturalist. (II, p. 17)

Gardner notes that "the naturalist intelligence refers to the ability to recognize and classify plants, minerals, and animals, including rocks and grass and all variety of flora and fauna" (in Checkley, 1997, p. 9). A ninth intelligence, existentialist, is currently under investigation. Gardner observes that "there may be an existential intelligence that refers to the human inclination to ask very basic questions about existence. Who are we? Where do we come from? What's it all about? Why do we die?" He notes that "the only

reason I haven't given a seal of approval to the existential intelligence is that I don't think we have good brain evidence yet on its existence in the nervous system – one of the criteria for an intelligence." Gardner noted during the Project Zero Institute 2001 that he is still collecting data to ascertain whether the existentialist intelligence should be added to the list of multiple intelligences (personal communication, July 2001).

Mae finds assessment and evaluation problematic when using MI theory. For example, how does one assess a dance compared to a written assignment? Mae notes that traditional ways of evaluation do not work. In response to the demands of standardized reporting, she finds herself asking the students to do written assignments as a follow-up to non-linguistic activities. "Each time you do an activity, if they're acting out a scene, they have to transfer it into written form" (I, p. 29). We discuss the possibility of using rubrics for some activities. Although this form of assessment can be more time-consuming, it gives students who have poor writing skills an opportunity to excel in their areas of strength. Our conversation turns to the rigidity of report cards and the obligation for teachers to ultimately give a grade for traditional subjects. Although some "MI schools" have incorporated all eight intelligences in their report cards, Cloudberry must adhere to the school district's standardized report card requirements.

I wonder if Mae has had any problems with parents who object to MI theory being used in their child's classroom.

ET: Have you had any hassles? Have parents come and said, 'Hey we don't like MI theory?'

MK: None at all.

ET: No?

MK: None at all, not one.

ET: So it's been good?

MK: They like that their children are having fun. They like that their children are allowed to show how they're smart. They do, because the writing is always done, they do value that, and in conferences, we very rarely talk about anything except written work. (I, pp. 31-32)

As an observer in Mae's classroom, one can easily imagine that the parents are satisfied. The students are busy and seem content; behavioral issues are negligible. I suspect that the students describe their experiences at school in a positive light. Mae mentions that one father, a university graduate student, has written a glowing letter to Mae earlier this year. The letter itemizes Mae's exemplary teaching practices.

I note that there are water bottles on many desks. This is unusual in a grade three classroom. Mae comments.

MK: You know, I am the only teacher who has water bottles on their desks, and Jill [principal] doesn't say anything good or bad, but I am trying it. Brain research says they need it so some of the kids bring it daily.

ET: I think it's a wonderful idea. Do you notice a lot more trips to the bathroom?

MK: No. I know a lot of teachers say, 'Oh no, I couldn't do that because they would be going to the bathroom.' I just let them go to the bathroom when they need to go to the bathroom. But again, I am not traditionally having them sit in their desks for an hour, so I couldn't even chart, because if they're up, if they're moving, they don't think of going to the bathroom because they don't want to, they don't want to leave.

ET: It's so much fun?

MK: It's fun. (I, p. 33)

Reflecting on my many visits to the grade three classroom, I am reminded of a busy ant hill. Students are busy with diverse learning activities, yet there is purpose to the busyness. I am not surprised that the notion of having water bottles does not cause

excessive bathroom trips; it fits the culture of the grade three room. Mae mentions that other people have made similar observations about her classroom.

> MK: A lot of people have commented over the years, 'Oh Mae, your classroom is always busy. You're always doing a million things and you *always* know what the kids are doing.'
>
> There's lots of things going on but I know what they're all doing because it's all on one topic, or all leading to one concept. (I, p. 26)

I ask a final question about challenges in mediating MI theory.

> ET: Have you experienced any other challenges?
>
> MK: Well, I work hard. Maybe that's why, because it is a lot of work, because you have to read and then you have to plan in a different way, but I really like that. (I, p. 34)

I reflect on the fit between Mae's teaching and learning style and MI theory. Would a teacher who enjoys a traditional teaching model have a hard time implementing this theory? Would it seem like a bother, perhaps "much ado about nothing"? Collins (1998), for example, thinks that implementing MI theory is a waste of time. He describes an ocean project in which students engage in activities that address multiple intelligences.

> They write about cleaning fish (tapping the linguistic intelligence), draw a sea creature (spatial), 'role play' a sea creature (bodily-kinesthetic), use a Venn diagram to compare and contrast ships (logical), tap glasses with different amounts of water (musical), design a water vehicle in a group (interpersonal) and choose a favorite sea creature (intrapersonal). All these activities will take up a lot of time, and they will teach children very little about the ocean. (p. 64)

I reflect upon the Nile project that I engaged in during my grade six year. Presumably, Collins would have classified this as yet another poorly designed activity. Still, it remains firmly embedded in my mind; structuring the topography around the river, considering

the elevation surrounding the river, noticing fertile growing areas close to the river, finding the source of the Nile, understanding the nature of a delta, dealing with the engineering problems of keeping water in the river bed, and maintaining healthy grass. Obviously, we could have learned important facts about the Nile by listening to the teacher, reading books, watching films, and filling out worksheets. It certainly would have been more time effective but it is doubtful that it would have made a lasting impression.

Practical Phase: Reflection

Collaborative teaching practice. Although Mae does not keep a journal, she frequently reflects upon her practice. The reflections focus primarily upon how she can improve her practice and thus facilitate greater success for students. Throughout our conversations, Mae mentions how much she enjoys collaborating with colleagues.

> MK: I often wonder, because I really learn from watching, so if I had a chance to peer teach with someone, I would learn so much more. If I could spend half an hour in Kerstin's room, I would learn *so* much. If I were a principal, in an ideal world, I would have each teacher peer teach all the time. Follow up, have a focus, work together, maybe even groups of three, observe one another, talk about what went well, why it went well. I think teachers would learn so much. (I, p. 34)

Because Kerstin was part of the early MI implementation group, she has assumed a leadership role at Cloudberry School. I find it refreshing that in spite of Mae's twenty years of teaching experience, five of those implementing MI theory, she feels that she has much to learn. The challenge of helping students to experience success is foremost on Mae's mind. We discuss diverse student needs and reflect upon how MI theory assists students with strengths in different areas.

Reflecting upon valuing students' strengths. Perhaps the most significant elements of MI theory is recognizing and valuing students' strengths. During classroom observations, Mae frequently compliments students on their strengths. In our discussions, Mae easily describes her students' strengths. We discuss specific students in the grade three classroom (all names are pseudonyms).

Sandra.

MK: Really, honoring the student makes the difference. Making them feel valued and smart. If they struggle with their handwriting or they know that they're a poor speller, they already have that label from their peers, whereas if the teacher could emphasize something else that they do well, in front of the peers, that honors and values them. (II, p. 6)

ET: Can you think of any examples where MI theory has helped students who struggle?

MK: Sandra in my class, I don't know if you've noticed?

ET: I was just going to ask you about that.

MK: Right. She is a girl who has been in this class since kindergarten so she's already labeled. The kids know that she's not very nice; she doesn't listen in class. They don't want her as a group member. They don't figure that she knows anything, so I have had to work hard to show others that she has a real sensitive nature, that she really wants to belong. She's quite people smart.

She isn't strong linguistically; she's not strong in writing, but she has a compassionate nature, which the kids wouldn't recognize because she doesn't readily show it. If there is an activity geared for that, she really comes alive and she offers her ideas and things.

ET: Would you say that people smart is her strongest area?

MK: Yes, but then again, she doesn't get along with people so I don't know.

ET: Does she have any other strengths?

MK: She is very kinesthetic because she wants to play with everything or scribble with everything, and she's listening while she's doing that. Active

activities really work for her. She won't do well in a traditional setting where it's listen and do the work. I think she'll misbehave.

ET: I noticed that she was still working very hard on her painting when I came into the classroom, and she was completely engaged and very careful. She had followed all the instructions; she had covered the whole page; she had used different techniques; she had used the salt, and she was still completely engaged.

MK: Even when all the kids were going for recess.

ET: Even when all the kids were moving around about her, she was focused and she was doing exactly what she was supposed to, and still doing that, so that seemed very important to her. I would speculate that if you were looking at it from Gardner's viewpoint, maybe she's picture smart? From the little bit that I have seen, she seemed quite happy to continue with that.

MK: And it was a bit 'body' [smart] because she was using different mediums, with the painting and the water and the different feel.

ET: Certainly body.

MK: She had her socks and shoes off because her feet were hot and she said, 'Don't worry. I'll put my shoes and socks on when my feet cool off.' (II, pp. 7-8)

This excerpt illustrates the constructivist approach of our research. Mae and I are not sure how to interpret Sandra's behavior, yet our dialogue propels us toward a more enlightened understanding. We use MI theory to further our knowledge of Sandra; we look at the world through MI theory. We use a surplus rather than a deficit model and therefore focus our attention on strengths rather than on weaknesses. In our discussion, we attempt to refine our understanding of Sandra's strengths. We try to establish which activities are of particular interest to Sandra. From our observations, we believe that her compassionate nature [interpersonal], her interest in art [visual-spatial], and her "fiddling" [bodily-kinesthetic] indicate areas of strength. From an educational viewpoint,

we discuss how a teacher might use these strengths to help Sandra improve upon areas of weakness.

Chen et al. (1998) note in *Building on Children's Strengths: The Experience of Project Spectrum* that observations of children engaged in carefully structured activities reveal children's strengths. For example, a child who enjoys spending substantial time at one of the eight Spectrum learning centers, based on Gardner's eight intelligences, is thought to display strength in this area. While the observations and activities in Mae's room are less structured than those in Project Spectrum, we believe that they serve as indicators of strengths.

Another similarity between Chen et al. (1998) and Mae's contexts is the shared belief in building on children's strengths. Chen et al. provide the example of Zoe, a shy girl in first grade who was 10 months younger than her classmates.

> During a 2-month unit on birds, Zoe revealed that she had an uncanny ability to imitate the sound of a bird singing. Her classroom teacher gave her the opportunity to duplicate many different birdcalls, an experience that gained her a newfound respect from peers and elevated her status in the classroom. Trying to build upon Zoe's sensitivity to cadence and sound, her teachers selected rhymes and poems as a way to engage her in reading. (pp. 40-41)

Similarly, Mae uses Sandra's interpersonal strength to include her in the classroom culture. Both Zoe's teacher and Mae use the students' strengths to elevate their status in the classroom. They believe that increased self-esteem will act as a hook to draw the students into the learning community.

In Mae's class, I find Sandra particularly intriguing. She has the potential to be a behavior problem, yet she applies herself to selected tasks with enthusiasm. The art activity is but one area of dedicated zeal. I note, on another occasion, an unusually high understanding of musicality. Mae has asked the students to create a group presentation to demonstrate their learning. The students are busily working on their presentations in the classroom while I sit back and wait for the resulting products. The performance time arrives and soon Sandra's group takes the stage. I watch as they deliver a musical rendition in which the five group members enter a student-composed song at different intervals. One person starts singing, then two, followed by three, and so forth, until all group members are singing. Sandra enters last. It is an impressive performance, well executed and with an amazingly complex form for grade three students. I am interested in which group member masterminded this composition. To my surprise, I find out that Sandra led the group in creating and executing the song.

I reflect on the high skill levels that Sandra displayed in the musical and interpersonal intelligences. First, she led the group in creating the song. Second, she chose a complex form that suited the composition. Third, she ensured that the group practiced the song (consider the challenge of leading four grade three peers in rehearsal format). Fourth, she arranged the physical line-up of the group members. Fifth, she applied leadership skills in successfully moving the group toward the goal. All group members took pleasure in performing the song. Sixth, she entered the song last, and was perfectly happy to do so. I assessed the happiness by the smiles on the students' faces.

I reflect further on this potential "problem child" and marvel at her success in the role of leader and her willingness to take the least important role in the performance. The

last singer to enter sings the least. In a conversation with Mae the following day, we return to Sandra. Mae notes that Sandra applied herself willingly in a linguistic task earlier during the day, and suggests that the praise Sandra received for her contribution to the musical performance encouraged her to pursue the writing assignment (a weak area) with renewed enthusiasm.

> MK: Recognizing her [Sandra] really works. She needs that, because writing, the word smart, is a real struggle.
>
> ET: I find Sandra intriguing because I can see that she could easily be a problem. What MI can do for a person like her is to recognize the people smart, the music smart, and praise her, recognize her for that. All of a sudden, she is starting to apply herself in the writing area, so that has a beautiful effect.
>
> MK: That's the most important thing with MI. If Sandra were forced to do only word activities in one particular way, she would continually refuse or balk or battle. And then she would be out. Last year, I know she was out of class more than she was in. (III, p. 14)

Valuing students' strengths is identified by Mae as *the* key component of MI theory. Although one might argue whether this is what the theory posits, it is apparent that valuing students is an integral feature of Mae's application of the theory.

I consider whether MI theory has caused Mae and me to view Sandra differently. I contemplate Sandra's affectionate nature. She presents me with a gift of art one day, which she has made in daycare. I hang it on my wall. When I stop by the school, half a year later, she spots me in a classroom and hugs me as a long-lost friend. She asks me when I will visit her new classroom. She excitedly tells the other children in the hallway, "Elisabeth is here today. Elisabeth is here today." As I reflect upon Sandra and MI theory, questions arise: Would I have been as aware of her strengths without the theory? Would Sandra have experienced the same level of success in a non-MI classroom?

Kevin. Other grade three students catch my interest. Kevin is well-liked and assertive. He stands out in group work because of his obvious leadership skills. I note that he is an effective leader who quickly builds a team and ensures that assignments are completed. Mae and I discuss our observations.

MK: When I ask questions, I know I have to address Kevin otherwise he'll be a trouble maker. He has a very strong need for people smarts; he needs to be heard.

ET: What else do you notice about him?

MK: Words are difficult. He doesn't care about spelling; he just wants to get his work done. He thrives on action, movement, go on, go on …

ET: What about his logical-mathematical skills?

MK: They're not strong, because to recall things, to put things together … when we did puzzle type things, those didn't come quickly so he relied on other people.

ET: Today, he emerged as such a natural leader. All of a sudden I heard his voice, 'All right, let's take our choices, now let's vote, how many yes, how many for the next?' He got them all organized, he made sure that the choice was made, and they were all happy to be his followers, no struggle … and so I thought, there is a natural leader, in a business, he might very well be a great leader. He would just get other people to do his spelling and math.

MK: Absolutely. He'll know where to tap into other people. The people smart truly is a gift if you have it, because those are the doers.

ET: Yeah, they make sure that things happen and get people to work together.

MK: Together, yeah. Get the collaboration and all that … (laughter). (III, pp. 2-3)

Mae and I agree that the MI framework assists us in understanding Kevin's strengths. It could be argued whether it is important to understand students, yet a common thread in current educational policy statements is that of meeting students' needs and ensuring success for all students. Mae meets the students' needs by determining their strengths and

weaknesses. She attempts to facilitate success by building upon the students' strengths, both to increase their ability in these areas but also to enhance their areas of weakness.

Fernandez. We turn to Fernandez, a recent immigrant from South America. Fernandez' age indicates that he should be in grade two but for unknown reasons, he was placed in grade three. Mae says that he came to her room speaking one sentence, "Me no speak English." He remained silent until Mae realized two or three days later that he could speak English. Fernandez has subsequently communicated vibrantly and enthusiastically. During classroom observations, I am struck by Fernandez's interest in the isopods that live in an aquarium behind "my" couch. Fernandez can often be found looking at and caring for the isopods. Mae and I ponder whether this is an indication of the naturalist intelligence.

It becomes increasingly apparent in our conversations that Mae prefers to talk about the students' strengths rather than their areas of weakness. She is animated and excited when she describes what they do well. She conveys a strong desire to seek out those strategies that facilitate success for the students. Any suggestions that I offer are carefully considered. For example, the day after our conversation about Fernandez's interest in the naturalist intelligence, Mae happily tells me that she has assigned Fernandez to "isopod keeper." According to Mae, he is exceedingly pleased with the appointment and takes his duties seriously. Thus, the isopods are ingesting a healthy leaf diet prepared by Fernandez. As we talk, Mae remembers Fernandez's interest in the "bug room" at the local museum. She mentions how he spent a lot of time with the bugs, an item that she had forgotten until we discuss Fernandez' possible strength in the naturalist area.

I contemplate whether: (a) MI theory sharpens our observational skills; (b) MI theory channels our thoughts to align with its framework; or, (c) we see what we want to see? Some scholars argue that we see the world according to our adopted theories (see e.g., Hanson, 1958).

Lisa. Mae and I talk about Lisa, an introspective Asian girl. She is quiet and attentive, and likes to work alone. Mae explains,

> MK: When I ask her to do some writing or some reflecting, she's just fabulous. 'Word' and very neat, a very studious student. She's bubbly, she presents well, so she has good people smarts. She is a leader when she gets in a group. She reads well, so 'word' again. She is very flexible, very good in gym. The attitude is top-notch so she is all round an excellent grade three student. (III, p. 8)
>
> ET: Mathematics?
>
> MK: Mathematics is just top notch too. Her report card is all As and I think she got an A in music too. If we were to watch her brain, she must light up in everything.

I reflect upon the tension between MI theory and the notion of *g* (a general intelligence). Lisa would presumably fare well on traditional IQ tests and thus be classified as having high intelligence, whereas a student who is strong in intelligences other than linguistic and logical-mathematical intelligences would be classified as having lower intelligence. The problem with focusing the vast majority of students' learning experiences upon linguistic and logical-mathematical intelligences is that we unwittingly structure failure for students who could be experiencing success in school.

Anthony. Mae and I discuss Anthony, a boy who struggles in many areas. As a preschooler, he was speech-delayed until age four and is now below grade level in writing. Typically, however, when Mae describes Anthony, she quickly moves to his strengths. "Anthony is very body smart. He loves gym. He cries if he has to miss it, and

he excels in it. He has nice long legs so he can run fast, but in the other smarts, he really struggles" (III, p. 9).

In spite of being shy, I observe Anthony making a nice presentation to the class during one of my class visits. According to Mae, "As long as there is a body aspect to it, he loves it." She also mentions that Anthony enjoys group work. "He loves group work, yeah! He just gets to task with the group and will offer ideas, but he'll never raise his hand in class" (III, p. 16). Although Mae recognizes Anthony as a struggling student, he is a valued member in the grade three classroom with identified strengths in body smart and people smart. Accordingly, Mae builds upon Anthony's strengths in bodily-kinesthetic and interpersonal intelligences in order to nurture weak areas through activities that include these two intelligences.

Bryan. Mae mentions that Bryan is a strong student. "Good home, does his homework. His parents make sure he does his reading, and he plays soccer and hockey. He is very body smart, but his writing is weak so we're working on that" (III, pp. 14-15). To help Bryan, Mae tries to compare his hockey playing to writing.

> MK: You know, hockey is easy for you and writing isn't as easy. How can you think about what somebody will read? How can you make it just as beautiful as when you skate?
>
> That analogy seems to have helped, yet he is a strong student, easy to work with. Things come easy to him. He'll get to work right away, but he still needs the recognition in the other smart [body] in order to excel in the word. (III, pp. 14-15)

Again, Mae draws on the bodily-kinesthetic intelligence to encourage Bryan's development in writing, an area of weakness. In this fashion, MI theory becomes a teaching strategy, a way to reach students and to motivate them to apply additional effort in weak areas. Compare this approach with university teaching award-winner Thomson's

(2001) observation: "The key is to try to find out what they're really good at and encourage what they do well, rather than finding fault in the things that they don't do well" (in Northcott, p. B7). Finding strengths and building upon these strengths is thus identified as an integral component of exemplary teaching practice. Although Thomson does not equate strengths with intelligence(s), the two terms are used interchangeably in the MI framework.

Developing intelligences. In my somewhat traditional IQ-influenced mind, I struggle with the concept of developing intelligences, yet Mae believes unequivocally that teachers develop students' intelligences. "*Definitely* intelligences can increase. Even with art smart, some of the children who struggle with fine motor can develop and increase their smart through more of that activity. I think all the music stuff that we do in the room has heightened the music smart too" (III, p. 19). As an example, Mae explains how Sandra's group music presentation could not have been executed without the systematic development of the musical intelligence. One might surmise that Mae views the teacher as one who develops intelligences. Thus, intelligence is not a static "gift" but rather a continuously developing human potential. This is of course the argument that Gardner holds, the notion that intelligence can be developed. Although the objective of this thesis is not to shed light upon the intelligence debate, it is nonetheless a topic that keeps occurring in the discourse.

Chapter V

CASE STUDY TWO: KERSTIN HILLMAN

Setting

Cloudberry School revisited. When I attempted to locate teachers who had systematically implemented MI theory over time, I had scant knowledge of where to find them. I knew of one potential school (Cloudberry), but was open to collaborating with teachers within reasonable driving distance. At one point, I considered contacting teachers in a district some four hours drive away but decided that the distance would limit the frequency of my visits. In response to my queries of nearby locations where MI theory had been implemented by administrators and teachers in a longitudinal change effort, Cloudberry School came up as the clear winner. No other school within a two-hour driving distance had implemented MI theory to the same degree as Cloudberry. In addition, Mae and Kerstin were considered experts on MI theory implementation in a geographical area serving more than 150,000 students. They had presented various professional development workshops on MI theory to educators in- and out-of-district. Thankfully, both teachers were excited about working with me. I wondered initially if choosing two teachers from the same school might diminish the richness of the data. On the other hand, I speculated that this strategy might enhance the data since the selected teachers necessarily have different backgrounds and interests, in addition to having dissimilar classroom contexts. Thus, I anticipated finding varying forms of mediation in the grade three versus the grade six room.

Although the theory is "static" in nature, notwithstanding Gardner's refinements as he gains further insights, the implementation of the theory varies because each person

who uses it makes choices about *how* to use it. Dewey (1939/1967) notes that when a person acts to bring into existence a particular result, that "person and surrounding conditions participate in intimate connection with one another. In naming this something that occurs between them it names a transaction. It points to an activity which takes effect through the mediation of external conditions" (p. 17). By carefully studying Mae and Kerstin as they mediate between the theory and the students, this study provides insights into the nature of theory application. I further discuss this topic in chapter six.

The grade six classroom. Upon entering the grade six classroom, I am immediately struck by the meticulous organization of the room and the vivid displays on every wall. The atmosphere is one of rich stimulus and I note that one could spend several hours studying student-generated reports and pictures, read about planets or ancient Greece, or play one of the many games that can be found in various locations in the room. A poster indicates what students can do if they finish an assignment early:

- review my spelling words
- try a Mensa Puzzle
- read (my novel, a magazine, a newspaper or a French book)
- solve a Problem Solving card
- look over my notes/work

I note posters that support the school's Character Education program. Headings indicate: *Respect, Responsibility, Self-Discipline* and *Compassion*. A poster of Garfield encourages students to use good manners. Kerstin has added words to the poster: *Good Morning, Hello, Excuse me, Please, How are you? Fine thanks. How are you? Thank you*, and *You're welcome.*

I look for signs of MI theory and find a large display with the heading: **THE 8 SMARTS**. Underneath are sub-headings of each smart on colorful construction-paper

(i.e. music smart, logic smart, picture smart, word smart, body smart, self smart, people smart, nature smart), with accompanying descriptions and examples of activities that align with the smarts. To the side of this display is a bar graph entitled ***HOW WE ARE SMART***, indicating students' strengths. Kerstin explains that students fill out a "smarts' checklist" (Armstrong, 2000) at the beginning of the school year. Each student writes his or her name on two sticky notes, representing their two top-scoring smarts (each smart is represented by a different color), which are subsequently used to build the bar graph. In this grade six class of twenty-four students (the teacher is also included on the graph), the sticky notes indicate the following distribution:

people smart: 7
body smart: 12
word smart: 9
picture smart: 6
nature smart: 5
logic smart: 9
music smart: 5
self smart: 1

Further displays about the eight intelligences can be found in the room. A sign notes: **LOGIC SMART**. On a table underneath this sign are various games and activities, for example, *Brain Quest: 1500 questions challenging the mind*, *Brain Quest: 1000 questions about Canada*, *Brain Quest: 1000 questions about science*, Problem Solving Cards, Math Games, and Math Worksheets. Another display notes:

SELF SMART

End of day self-reflection

What are you really proud of?

What are you looking forward to tomorrow?

Along one wall is a banner:

The most important TOOL FOR SUCCESS is the belief that YOU CAN SUCCEED.

I conclude that Kerstin has attempted to create a climate that nurtures a belief that all students are intelligent, and that all students can be successful.

The grade six room is spacious with natural light from several windows. During my visits, I set up shop at a large, round table in a corner. Close to my table is a rabbit in a cage. The rabbit's name is Soda, and the students take turns caring for him. Every day, Soda is taken out of the cage and scampers around the classroom, typically during quiet work time. The students seem happy about his presence and dutifully perform their rabbit chores. I am introduced as Mrs Thomsen and the students seem comfortable with my presence. They are pleased that I come from Sweden since they correspond with students at a school close to Stockholm.

The grade six students have the same allotment of art and music as the grade three students, 60 minutes of music and 50 minutes of art per week. Since Kerstin also teaches grade five French, another teacher instructs her students in physical education. Both Mae and Kerstin indicate that I can come and go at will and since their rooms are adjacent, I try to distribute my time evenly between the two classrooms. My laptop computer becomes indispensable as I move between the two rooms.

Kerstin reminds me of a highly skilled orchestra conductor. When she gives instructions, the students respond eagerly and enthusiastically. I speculate that if she were to ask the grade six students to stand on their heads, they would follow her command. I am reminded of a conversation with Jill Summers, principal 2000-2001.

ET: I am just amazed at how she [Kerstin] has those kids eating out of her hand.

JS: They love her.

ET: They love her.

JS: They just love her, but she brings out the best in them. One of the students came from out of town. Gordon is "academic challenge" [performs above grade level and is given modified assignments, *more* challenging than the other students] and I don't think he's ever been challenged to work that hard. As well, two students, twins in that class, were at one time identified "adaptation" [performs below grade level and is given modified assignments, *less* challenging than the other students]. Their father and mother said that this is the best year they have ever had, and of course I was surprised when I was reading their report cards and they were getting As and Bs [during the grade six year, they were placed in Kerstin's room in a regular program, no modification]. (I, pp. 18-19)

Jill attributes the twins' success to Kerstin's ability to bring out the best in the students. During classroom observations, I note that Kerstin employs various exemplary teaching techniques. Examples of these include cooperative learning strategies and continual monitoring of students' progress. For example, after a teaching segment, while students are working on assignments, Kerstin continuously circulates throughout the room, checking to see if students have any difficulties. The efficiency with which this is accomplished is impressive, a few seconds at one group, a few at the next, a look around the room, stopping for a couple of minutes at a student's desk to offer help, looking around again. Rarely does a student remain idle in this room.

The grade six class comprises students with diverse needs. One boy is physically challenged and has a full-time aide. Four students are coded English as a Second Language (ESL) and receive daily assistance in the library from a teacher's aide. Laila, one of the four ESL students, arrives from Asia during my data collection. She has minimal English skills. I watch as Kerstin takes her around the room and points to items, saying "door, window, desk." Another grade six girl, with the same mother tongue as Laila, translates when it is convenient. The twins, mentioned in the quote above, are

integrated into a regular classroom setting after several years in a special-needs class. Add to this diversity the very different backgrounds of the children, their diverse cultures, and their varied knowledge. I note, during my first visit to Cloudberry, that the minority of students is Caucasian and I am reminded of Jill Summers' description of the school as a mini United Nations.

In spite of this diversity, the word that comes to mind when thinking of the grade six room is *peace*. I experience incredible peace and serenity whenever I visit the room. The children arrive happy each morning and get their things ready for class (textbooks, binders, pencils etc.). The daily agenda is noted on the board before the students enter the room. For example:

Tuesday, May 8, 2001
mardi, le 8 mai 2001

1. SQUIRT/Small Math group
2. Science quiz
3. L.A. - articles
4. 9:30 Enrichment choir
   Recess
5. L.A. - articles
   - mythology

After each recess, Kerstin asks the students if everything went well on the playground. Being a small school with few behavior problems, the students typically respond that recess was fun. The teacher-student rapport is comfortable and respectful. Kerstin models impeccable courtesy throughout the day. She unfailingly ends every request with "please" and thanks the students when they respond to questions. In addition, Kerstin and the students often laugh and share little jokes. Kerstin appears to enjoy teaching grade six.

ET: You like teaching grade six …

KH: I love it. I love it. I love the curriculum. (I, p. 26)

Kerstin is one of 35 teachers from this urban school district who are among the 131 provincial finalists for the 13th Annual Excellence in Teaching Awards for 2001. Interestingly, three teachers (grades three, four and six) from Cloudberry School, with a staff of only ten teachers, advanced to the 35 district finalists. The school district has 4,200 teachers in over 200 schools. There are 32,000 teachers in the province. Jill Summers comments that I "picked two of the strongest teachers that [I] possibly could have" (I, p. 10). I reminisce that when I established the criteria for selecting teachers for this study, "exemplary teachers" was not listed in the criteria. Instead, I looked for two teachers who had extensive experience in implementing MI theory within a reasonable geographical proximity. The fact that Mae and Kerstin are exemplary teachers came as an added bonus. I ponder whether there is any correlation between teachers using MI theory and exemplary teaching practice but recognize that this a question for a different study.

Philosophical Phase

The quest for excellence. As in many other school districts, the quest for academic excellence is upheld as *a primary goal* for teachers, administrators and support staff in the school district of my study. When I first arrive at Cloudberry School, I meet briefly with Jill Summers who is thrilled that I am conducting research at her school. She proudly shows me the provincial achievement test results for the district's elementary schools for the year 1999-2000. Among 155 elementary schools, Cloudberry scored in the top 5% for grade six in the four subject areas tested at this grade level. According to the Fraser Institute's ranking formula, the school attained first place in science, second in social studies and third in language arts and mathematics. Jill mentions that academic

achievement has steadily increased during her three years as principal of the school. Jill views the test scores as an indicator that the school is achieving its educational goals.

Kerstin believes that all students are capable of producing excellent work.

> KH: I've seen it time and time again. I think it's important for the teacher to have a variety of activities. I think you have to give students choices along the way in how they're going to demonstrate their learning. I think you need to show them what excellence looks like and be very clear in your expectations, what it is that you want to see, what they need to do in order to get an A or a 4, if you're using a rubric. (I, p. 11)

Kerstin continues, impassioned,

> KH: I enjoy seeing their excitement and their enthusiasm and their love in what they're doing. It never ceases to amaze me what these kids will come up with or what they'll do; it's just off the mark. They do such incredible things and I believe it's because they're interested, they're motivated, they're excited about what they're doing.
>
> I think kids learn a lot from each other. Last year, we were doing a project and students had choices in how they were going to demonstrate their learning. Some students wanted to choose the more traditional report, and that was fine. But it was interesting at the end, one girl had written a song about her topic and had done a diorama, and even sewed some pillows. One group had done a play; another group had done a song as well. One child who had done a report said, 'Oh, I wish I had done something like that.' I said, 'Okay, maybe next time when we do a project you could try something like that.'
>
> Having the students see the excellent work done by their classmates encourages them to take risks in areas that they haven't felt comfortable in before. It encourages them to go beyond what they were, I guess to step out of their comfort zone a little bit and to take a risk. It's still a safe environment. (I, p. 12)

Kerstin observes that a variety of activities seems to work best. Although she provides choices from time to time, she also expects students to perform well on paper-and-pencil assignments. She creates knowledge-based practice tests (short answer and multiple choice) and teaches the students test-wiseness skills. She does not consider MI theory a

hindrance to academic rigor but views it as an aid to meet desired curricular outcomes and to raise student achievement.

Clear expectations. When I arrive in the classroom in March 2000, it is obvious that numerous expectations have been established earlier in the year. Kerstin is a taskmaster when it comes to getting students to work hard. Because of extensive lesson preparation and meticulous organization, the students are actively engaged in learning activities throughout the day. Kerstin has also established a strict homework policy. "We have a homework assignment. It *is* to be done [laughter]. No excuses (I, p. 14). Students who fail to bring in assignments are served with a note to be signed by their parents. I observe no problems with homework completion during my time in the classroom.

Behavior expectations have also been established. "This is acceptable, this is not. We've got very clear, concise expectations regarding behavior, how we treat everybody in the class, building that team atmosphere, that supportive network" (I, p. 14).

I am curious how Kerstin communicates expectations about academic excellence.

ET: How do you show them what excellence looks like?

KH: I find that my grade six students read lots but when it comes time to write a four-page story that is concise and to the point, they have difficulty with that. When I think of our achievement tests at the end of May, they have two and a half hours to write a newspaper article and one and a half hour to write a story.

I chose the literature by Chris van Alsburg. He writes phenomenal short stories. I read one and then we talk about it. 'What did this author do to make it a really excellent piece of writing?' The students tell me, 'There are lots of setting details; the plot was interesting. It was a really good description because of the similes and metaphors. There was always a twist to the ending. When the book was done, you kept thinking about the story.' (I, pp. 14-15)

We discuss assessment and the use of rubrics when grading projects and it becomes clear that Kerstin expects excellent work in all areas, whether in song, a dramatic enactment, a picture or a diagram. Words such as "colorful, neat, labeled and accurate" intersperse Kerstin's description of clear expectations. "Just be specific of what it is," she advises (I, p. 15). Over the years, Kerstin has increasingly learned to take cues from her students. "I think a good teacher learns from the students as well, all the time" (I, p. 16).

Decision to use MI theory. Kerstin describes herself as a traditional learner. As a student, she loved language arts and mathematics and thrived on worksheets. Thus, Kerstin does not fit the notion that teachers choose to implement MI theory because it aligns with their preferred learning modes. If Kerstin taught according to her strengths, she would focus heavily upon linguistic and logical-mathematical intelligences. In contrast, Mae enjoys bodily-kinesthetic and musical activities and MI theory might be seen as justification for including more of those activities in her program. Kerstin expands,

> KH: For me it's hard to plan certain types of activities. My learning style would focus on very linguistic and math activities, and I might never address musical activities because it's not part of my learning style.
>
> ET: So there was something else that made you take hold of this?
>
> KH: I think the initial thing was that we visited a true MI school in Richmond, BC and we saw the value of it. We were so impressed and excited by what we saw there. That was our buy-in. I really believe it needs to be a school focus where everyone is doing it and can collaborate and share activities. Having the support of the whole team is very effective. (II, pp. 8-9)

Kerstin mentions some of the things that made the BC trip memorable.

> KH: Just walking in the school, the quality of student work and student display was just incredible. There was such excellence in everything you saw. There was lots of cooperative learning going on. There didn't appear to be any behavior problems. They also had a high portion of ESL students and

> those students were engaged in activities and they were learning just like the other ones. The activities were really interesting with lot of hands-on activities. The students really did seem engaged and excited about what they were doing.
>
> They had a special assembly and we thought it was so interesting because they were demonstrating their learning in ways that we had not traditionally seen. One group got up and did an actual play about electricity. They were acting out and moving their bodies, showing the different positive and negative charges.
>
> Traditionally, when I think of how I taught science before, I would have the demonstration with the batteries and the wires and then the kids would write it down, and then you would have the traditional paper-and-pencil quiz to see if they understood it. But in Richmond, these kids obviously understood it and it was so much more interesting, so much more engaging to see them acting it out and they obviously were having fun. (I, pp. 1-2)

The students' understanding of concepts, and the novel ways in which they demonstrated their learning made a strong impression upon Kerstin. During our many conversations, Kerstin often reverts to this initial experience with MI theory.

Kerstin was part of the original group of Cloudberry staff members who went to study MI theory implementation during the provincial teachers' convention in February 1995. The group consisted of the principal, the art teacher, Kerstin and another classroom teacher. They came back highly enthusiastic about what they had seen and shared their newfound knowledge with their colleagues. The principal who believed in collaborative decision-making encouraged the teachers to discuss using MI theory as an instructional approach. Kerstin expands, "As a school, we decided that it [MI theory] was something that we wanted to follow. I think it is crucial that you buy in as a staff. You can't just have one or two people on staff deciding what direction to take" (I, p. 1). The discussions resulted in the staff making the decision to use MI theory at the school.

I ask Kerstin if there were any "aha" experiences that revealed to her the benefit of using MI theory. Kerstin recollects a time approximately five years ago when she administered the intelligence questionnaire to the grade six students. One boy, who had trouble with reading, writing and math, wrote, "I realize that I am smart" (I, p. 10). Kerstin believes that it was helpful for both the student and for her to read this statement. "Here was a child who had thought he was dumb because the tests and the reading and writing, he just couldn't do it" (I, p. 10). Yet, this student was encouraged to build on his strengths, and to work on his weak areas because Kerstin had taught the students that everyone is smart. Kerstin remembers another student, who on the same questionnaire wrote, "I realize that I don't give myself enough credit for what I can do" (I, p. 10). His strength was bodily-kinesthetic, which was now valued. Kerstin elaborates,

> KH: MI theory helps students improve their self-esteem and their self-confidence in themselves. If they're not the traditional strong leaders in the classroom, the readers and writers, or mathematicians, they can be very talented in art, or very body smart. The students think, "I can do these other things. I have really good people skills. I like working with others." I think that builds them up so that they'll work on their weak areas. (I, p. 10)

At the time of data collection, Kerstin and the art teacher are the only remaining members of the group of four who went on the study trip to BC. Kerstin is recognized as a leader at the school. She is the principal designate when the principal is away from the school; she has the most experience in MI theory implementation (the art teacher works part-time and focuses primarily on the spatial intelligence); she ensures that teachers sign up for MI presentations during assemblies, and there are talks underway that she will be the in-house MI instructor for staff development during the upcoming school year (2001-2002).

A sustained interest in MI theory. Although the trip to the MI school in BC acted as an initial catalyst, Kerstin interest in MI theory has been sustained by numerous experiences.

> ET: What has sustained your interest in MI theory?
>
> KH: Seeing the success of my students, seeing how all of them excel in their projects. Thinking back on how I used to give assignments, some students got As, others got Bs, and a few got Cs. But when I give projects where kids have choices, where they're using different ways of demonstrating their knowledge, they're all successful. When I think back to one of the science projects I did this year on endangered animals, I think twenty-three of my twenty-four students got As. They excelled; they met the criteria that I had established for them. They had choices in how they were going to demonstrate their knowledge so they were excited. They were motivated about what they were doing. (I, pp. 8-9)

In this particular project, Kerstin encouraged the students to demonstrate their learning using several of the eight intelligences. Knowing how easy it is to teach according to one's own strengths, I wonder why a teacher with a strong interest in linguistic and logical-mathematical intelligences would persist in incorporating seemingly time-consuming and non-academic activities.

> ET: What benefits do you see in students demonstrating their learning through a song or through bodily-kinesthetic activities?
>
> KH: They're going to remember it and then they're going to prove it when it comes time for the test. I think it's important to remember that they are learning in different ways. (I, p. 13)

Providing students with choices in learning (input) and in demonstrating learning (output) is thus used as a vehicle for attaining curricular outcomes and for achieving academic excellence on classroom assessments and on standardized provincial achievement tests.

I ask Kerstin to expand on the benefits of using MI theory.

> KH: I think MI theory helps teachers because the kids are interested in what they're doing. For example, why do kids misbehave? Because they're

> bored, because they don't want to do what the teacher is asking very often, because they don't get it. They're frustrated, it's hard for them. "I don't know how to do this." As a teacher, you try to engage them and get them interested in something that they want to do.
>
> I think it goes back to my beliefs. All kids want to learn, all kids want to be successful. If they're not, what can you as a teacher do to make sure that they can be? (I, p. 27)

Kerstin recognizes the importance of valuing students' strengths.

> ET: What do you think is the most important feature of MI theory?
>
> KH: It acknowledges that people are smart in different ways and it honors those strengths that traditionally were not valued in schools. All the students recognize that they are smart in different ways, and I think in the classroom it helps to promote that team atmosphere in respecting others and appreciating others' differences.
>
> For example, if I have a problem in music I know that I can come to you because that's one of your strengths and it's something that I am still developing. Then you can come to me for math or something else, so it increases collegiality. I call it "partnerships with others." (I, p. 18)

The notion of collaboration is important to Kerstin. She values the collaboration between colleagues on her staff, and she nurtures the collaborative approach in her classroom. Building upon the strengths of the staff members and the students in her class becomes a way to improve teaching and learning.

Kerstin mentions that MI theory has assisted her in becoming a better teacher.

> KH: It [MI theory] makes you a better teacher. It makes your students more interested, more excited. I really believe it increases the self-esteem of your students. It increases the ability to work as a team and valuing each other for the different strengths. Students do not believe that they are dumb just because they are not good at the traditional reading, writing and math. (II, p. 10)

The belief that students are smart is one that increasingly captures my interest. How important is it to cultivate this belief in students? It is obviously not effective to simply tell someone that he or she is doing a great job in the name of increased self-esteem, as

many experiments of the 1960s revealed. However, the notion that everyone is intelligent but in different ways seems to strike a different chord. Mae and Kerstin do not offer "false praise" for the purpose of creating good feelings. Instead, they seek to understand the students and their intelligences, and to build upon students' strengths in order to promote learning. Of all the benefits that Mae and Kerstin mention, the notion of capitalizing on strengths is the one I find most intriguing. If the mandated curriculum is a constant, considering what students *can do* as compared to what they *can not do* offers philosophical perspectives that can lead to significantly different outcomes.

The students' perspective. Although the walls in the school and in the grade six room clearly display evidence of MI language, I am not sure how well the students understand MI theory. I rarely hear them talk about the theory and wonder if it is because MI theory is part of the Cloudberry culture and thus a normal state of affairs. Have the students internalized the theory? Perhaps MI theory is a language used primarily by teachers and therefore of little consequence to the students. Does the theory even make sense to the students? I ponder these questions as I observe the teacher and student interactions during my classroom visits. Toward the end of my data collection, I create a student survey to get a glimpse of their knowledge of the theory (see Appendix H). I am surprised at the high level of articulation with which the students respond. They easily describe skills pertaining to each intelligence.

A student new to Cloudberry this school year describes self smart (intrapersonal) behaviors: "self-evaluation, metacognition, analyze what you have learned, checking what you have learned and how well it was done." Another student writes: "A body smart person likes to be bodily active, such as dancing, playing sports, and being in plays." This

student describes his own strengths: "Math smart and word smart. Math smart because I find thinking logically very easy. I find solving problems and thinking abstract simple. I find my word smart strong because I like reading and writing and I find it easy."

A student who finds word smart challenging writes, "I don't know a lot of english [sic] since its my second language." He continues,

> These smarts have made school fun because instead of just reading the information you have you can use body smart by making a play to present to the class. Also the smarts have made more fun is [sic] school also because we got to draw lots of piture [sic] and also do computer projects. The computer project like PowerPoint made it more fun because you got to do different effects to your project on the computer. You got to get pitures [sic] from the internet. Also smarts have made school more enjoyable because we go to do a lot of body smart in gym like playing basketball, scatter and doctor dodge ball. Smarts have made school so fun.

Another student describes a weak area: "I don't think I'm strong in self smart. I hate being alone and having no one to talk to. I always like to talk to someone no matter who they are. I also don't like working alone, its more fun working with others." This student describes a project where she used several smarts:

> My social studies artifact. It was a project that was mostly done at home. We could choose any need, physical, social or phycological [sic] need and do a topic. I chose physical, shelter. I made a greek [sic] home out of paper. It is pretty big. We also had to write a report. The smarts that I used are word, logic, body and self smart. I used word smart because I had to write a report about homes in ancient greece [sic]. I used logic or math smart because I had to make sure that everything fit and how big it was going to be. I used body smart because I had to tape, cut and mesure [sic] my ancient greece [sic] house. I also used self smart because I did the project by myself. I used a little picture smart because I colored the rug.

The same student describes the following benefits of MI theory:

> It [smarts] made school more fun because for some people they learn best through visual spacial/picture [sic] smarts while other people learn better through music or logic/math smarts. And so that way everyone will improve the smarts that aren't so good because everyone is good with different smarts. It also makes school fun

> because since there are eight different smarts we will learn through different ways.

A similar opinion is echoed by a student who, according to Kerstin, has "blossomed" this year:

> Yup! Instead of writing a 10 page report about an endangered animal we got to do whatever we wanted to do that would tell a lot about the animal. For example, some people did board games, posters, hyperstudio, skits, puppet shows etc. I think that doing those things are a lot more fun than writing a ten page report!

Two of the twenty-two students who responded to the survey questions note that MI theory has not made a difference to their learning progress: (Student 1) "It hasn't affected how much fun school is (besides, school is already really fun!!!!!!!)" and (Student 2) "not realy [sic] school is still the same I think."

The most thought-provoking responses come from one of the twins:

Question 12: How has learning about the eight smarts helped you become a better learner?

> It has encouraged me to do a better job on my work. It sometimes wants you to do your best work. When I look at those 8 smarts, I feel pretty good about myself.

Question 14: Have the smarts made school more fun? If yes, describe how they have made learning more enjoyable.

> Yes because you learn new stuff each day and helps you get better at stuff. If some people think you're a dumb kid go with eight smart. You won't called a dumb kid after that. You will learn stuff you never new [sic] before. You will be getting A's and B's on your report card. Your parents will be proud of you and your ability to give your best.

The purpose for the survey was not to get unbiased comments about MI theory from students, many of whom have attended Cloudberry for the past six years, but to see how they had made sense of the theory. Before I gave the survey, I had little knowledge of what the students knew of the theory since it was seldom talked about during class.

The only time I heard students talk about MI theory was during assemblies when they demonstrated MI learning experiences. Thus, I found the surveys to provide another angle on the mediation process, this time from the students' perspective.

Interpretive Phase

Diverse learning activities. Kerstin's study trip to the MI school in Richmond provided a first level of interpretation of MI theory. The variety of activities that she saw struck Kerstin as particularly interesting and she concluded that the Richmond students gained a deep level of understanding from demonstrating their learning in diverse ways. This initial impression remained with Kerstin as she advanced on her own MI journey. Six years after the study trip, I ask her to describe the key ingredients of an MI classroom.

> KH: You would need to be in there for more than an hour. You would see kids involved in different types of activities, not necessarily the traditional pencil-and-paper activities, not that those don't have value, they do, but that's not all you would see. If they're learning something in social studies, they're not necessarily just reading it from the text book and then answering questions about it. They might be making a diorama or mural; they might be taking the facts that they have learned and putting them into a song. You would see variety in groupings: whole group instruction, students working in small groups, or students working individually. I think you would see a rich variety of different things. (II, p. 1)

Since Kerstin was one of the first teachers to implement MI theory in this geographical region, we discuss how the staff made sense of the theory.

Learning about MI theory. The teachers at Cloudberry decided on a gradual approach to the innovation. "We started out slowly. It was a gradual process. We decided to focus on one intelligence at a time" (I, p. 2). Small groups of teachers signed up for an intelligence in which they were interested, with the goal of presenting this intelligence to

the rest of the staff. Kerstin credits Beth Engels, principal, with providing strong leadership and support.

> KH: Beth was very good. I think you really need someone who will take leadership and provide you with the materials you need. Because realistically, as a classroom teacher you're very busy with everything else and you have to be careful that it's not seen as an 'add-on.' Beth was very good in providing us with a bunch of resource materials and photo-copying, some pages from here and there. (I, p. 3)

Kerstin still has the binder that Beth made for the staff. "Each intelligence we did, everyone on staff would get a handout of different materials, and a divider to stick in the binder from Beth" (I, p. 4). Many of the materials used at Cloudberry School had been recommended by the principal in Richmond. As a result, the influence of the Richmond implementation spanned further than just the teachers' impressions and memories of the study trip.

Concurrently with the study of intelligences, the teachers started trying out MI activities in their classrooms. Looking back, Kerstin views the implementation at Cloudberry in three phases. Phase I consisted of "getting our feet wet and just learning what is bodily-kinesthetic intelligence, or what is this interpersonal stuff" (I, p. 4). During Phase I, one staff meeting per month was devoted to learning about MI theory.

In Phase II, "people knew about it. We had tried some ideas; we needed more at this point" (I, p. 5). Accordingly, Beth purchased a copy for each teacher of *Teaching and Learning Through Multiple Intelligences* (Campbell et al., 1996). A study group format evolved, again with one intelligence selected per month, but now with the expectation that the teachers read the chapter pertaining to the selected intelligence before the staff meeting. During this phase, two staff meetings per month were devoted to MI theory. "The first Thursday of the month, everyone was expected to have read the chapter on

whatever intelligence. We would then come to the meeting and discuss what we had read, what was interesting, what ideas sounded very interesting, or things that we wanted to try" (I, p. 5). The teachers would then break into divisional groupings (Division I: grades 1, 2 and 3 and Division II: grades 4, 5 and 6) for planning purposes, to "plan something that we were going to do in our classrooms sometime during the next two weeks" (I, p. 5). Kerstin continues,

> The third Thursday of the month, which was our second MI session, we'd again meet as a whole staff and share what we had done and how it went. It was valuable to hear the really neat things that were going on in the school. Teachers would talk about it, they'd bring the student work, and they'd show examples and that was just great, plus we would share at assembly too, so the rest of the kids could see what the other classes were doing. We did that for about a year, maybe even into the next year. (I, p. 5)

Staffing changes and a focus on technology integration ushered in Phase III. In Kerstin's words, "MI unfortunately took a back seat because we had all this computer technology that came into our school" (I, p. 6). Kerstin believes that the remaining staff members were comfortable with MI theory and kept working with it. However, due to learning requirements of the new computer technology, MI theory no longer held the same strong focus during staff meetings. Although a buddy system was initiated to mentor new staff in MI theory implementation, the new teachers did not receive the same in-depth professional development as the teachers who had been there during the early stages. Kerstin feels that it was not as specific, "it was left open" (I, p. 6). Thinking back on the current school year, 2000-2001, Kerstin concludes: "This year we decided that we missed our meetings on MI. I know for next year, we want it to be a strong focus, like it was before" (I, p. 7).

Kerstin views the process of learning about MI theory integral to understanding and implementing the theory. In broad strokes, the process used at Cloudberry School can be broken down into the following steps:

1. viewing theory in action during trip to MI school in Richmond (catalyst event);
2. learning basic elements of theory through study of binder materials, staff discussions and initial implementation efforts (Phase I);
3. gaining deeper understanding of theory through study of Campbell et al. (1996), frequent discussions, divisional planning meetings, and systematic implementation efforts (Phase II); and
4. initiating a buddy system to help new teachers understand the theory (Phase III).

The four steps took place over a six-year period. Kerstin notes that she found the first three steps particularly effective. The enthusiasm with which the staff embraced learning about, and implementing, the theory permeated the school.

Of particular interest is the evolving nature of the mediation. Applying a theory in this context is not simply a matter of "taking a theory and using it." Kerstin notes, "Nothing that I have ever read has said that this is how you should do it, and Howard Gardner says that himself. There is no one method" (I, p. 16). Struggling with understanding what the theory means and testing it in the classroom setting become part of an evolving process that is continuously under review. Did a certain application work? What did you think? How did you use it? What did your kids think? The messy nature of this process exemplifies the complex nature of mediation. There is no precise way to apply theory.

Understanding MI theory. Because Kerstin has presented MI theory implementation to numerous educators, I ask how she explains the theory to the uninitiated.

ET: How would you explain it to someone who didn't know anything about MI theory?

KH: Actually, we get that a lot. People say: "What is MI theory? (laughter) I've never heard of it."

ET: What do you say to people in a nut shell that don't have a clue.

KH: The theory realizes that there are different ways for people to be smart. Right now it focuses on eight different ways. Everyone possesses all different intelligences. Some people are stronger in certain areas than others but I truly believe that if children are in an environment where they are presented with different experiences, they can develop each intelligence to an adequate level.

I ponder the nature of theory versus the nature of method. A method is prescriptive in nature. It tells you what to do and how to do it. It focuses on the correct way of implementation. In contrast, the gradual, collaborative, sense-making process experienced by the teachers at Cloudberry supports a rich and varied implementation. The focus is primarily on the students, not on method. The emphasis rests on finding strengths, on providing choices, on finding ways to unlock the potential that resides within each child.

Understanding the nature of theory. I am curious to explore whether Kerstin feels that she has had to "adjust" or change MI theory in order to make it fit her context.

ET: Do you feel that you have adjusted MI theory to accommodate the students in your classroom?

KH: Uh …

ET: Do you feel that you have changed anything in MI theory to make it fit for you?

KH: No, you can learn things and read about it and you pull what works for you.

ET: Maybe I should ask it this way, is there anything in MI theory that you feel doesn't work for you, or do you feel that you have embraced whatever it is that MI theory is?

KH: Have we adjusted it somehow? No, I don't think so. I think we realize, okay this is the theory, these are the eight intelligences, and we work with it. (II, p. 19)

This rather inarticulate (on my part) excerpt illuminates my own struggles with understanding theory and its implementation. I am trying to determine whether Kerstin tries to change the theory to make it more palatable, more usable in her context. However, Kerstin views the theory as "static;" it is someone else's notion of the world. The question for Kerstin is not whether the theory needs to be changed, but how she can use it, assuming that she does not reject it. We discuss some of the challenges that Kerstin has experienced.

Challenges during the journey. Kerstin has found few teachers outside Cloudberry with whom to collaborate on MI theory implementation. We discuss why, in a district of this size, few people are aware of, or seemingly interested in, MI theory. We believe that numerous people have heard about the theory, yet the implementation efforts are scattered. We speculate whether it is because of lack of administrative support, whether the theory is viewed as another bandwagon, or whether it is considered an "add-on" to already busy schedules. Kerstin comments, "I very much see its value and it surprises me that it's not more commonly known about in our district. It seems to me that it's picking up momentum in the United States, but not very much here. I don't understand why not because I think it makes you a better teacher" (II, p. 10).

We discuss the role of the principal. The administrative changes of the past six years have altered the context of the school. After Beth Engels, initiator of MI theory, left in June 1997, a new principal arrived who only stayed for one year. The momentum of the initial change effort carried MI implementation through the 1997-1998 school year, yet Kerstin or Mae do not refer to this interim principal in our conversations. A third principal, Jill Summers, entered the picture in August 1998. Jill is highly knowledgeable of the learning styles approach and supports the use of MI theory. During her three years of principalship, Kerstin, Mae and the art teacher assume leadership roles in MI implementation. A buddy system is initiated to encourage transfer of knowledge to new staff. Kerstin notes, however, that without the structured support that the teachers experienced in the beginning phase, "teachers may not focus on it as much. It's not that they're not interested in it or that they don't want to learn more about it, but we felt that without structured support, they just don't get around to it" (II, p. 6). I note that most of the MI teaching resources were acquired during Beth Engels' principalship. I speculate that the waning interest is not so much a willful turning away from the theory as a "lack of attention" phenomenon.

Kerstin notes that the emphasis on MI theory diminished in part due to the time required gaining knowledge about the new technology in the school. A substantial endowment of new computers demanded substantial time commitment from staff members. Kerstin and some of the other teachers miss the focus on MI theory and expect a renewed focus for the upcoming school year (2001-2002). During the end of my data collection (spring 2001), however, a new principal (the fourth principal since MI theory

implementation) assumes the leadership of the school and Kerstin is unsure about what direction will be set for the next year.

Practical Phase: Planning

The practical phase consists of three main components: planning, application and reflection.

Planning for instruction. Kerstin views MI theory as a framework for instruction. She takes encouragement from the theory to incorporate activities that address diverse strengths. Kerstin explains how she tries to achieve a balance between the eight intelligences.

> KH: When I plan my lesson, which intelligences are being used? What am I doing? When I look at the course of a week, have I just strongly focused on certain types of activities? If I have, what about all the kids whose smarts I have not included. When I am planning, I try to get that balance. (I, p. 8)

The provincial curriculum provides a detailed blueprint for the concepts, skills and attitudes that must be taught at each grade level. In this context, MI theory does not alter *what* is taught but *how* the curriculum is taught. Kerstin uses MI theory in several ways in her teaching practice: (a) she teaches the students about multiple intelligences, (b) she uses MI theory as a "check list" to ensure that she includes activities that address all eight intelligences, and (c) she uses the theory to develop the potential that resides within each student. She expands:

> KH: I use it [MI theory] not only for teaching the kids about the different ways they're smart but more so in my planning. When I am planning activities, when I am teaching the mandated provincial curriculum, I make sure to do it in different ways and to provide different experiences and opportunities for kids to learn what they're supposed to. I think it just makes me a better teacher. It makes me more aware of the different ways that people learn.

> I think in the beginning, you tend to teach to what your strengths were as a student. Different teachers have different strengths and what they get from Mae is wonderful because they don't necessarily get that from me. Every teacher is unique and different and the students gain so much from being with them and going from room to room each year. Yet, we all plan for the different intelligences and we all try to have a balanced program. (I, pp. 18-19)

Kerstin realizes that applying MI theory necessarily leads to different forms of mediation. She recognizes that Mae applies it differently in the grade three room and is comfortable with MI theory taking on various forms in different classrooms.

We discuss specific strategies when planning for instruction.

> KH: I start with the curriculum topic and then I use a web [graphic organizer]. I write down what it is that the students are going to do, keeping in mind that there are some areas that I am going to be stronger in and have more activities in. I always try to make sure that I have activities for each intelligence. Of course, in science there are going to be more experiments and hands-on as compared with, let's say the China topic. In planning, I try to make sure to get all the areas. When I give kids assignments, I try to give them some choices along the way. (I, p. 21)

Addressing all eight intelligences in the planning phase alters the way Kerstin plans for instruction. Having a web, or a graphic organizer, in which she inserts diverse activities broadens the scope of activities in her classroom (see Appendix I). Although reading and writing are still important curricular outcomes, and well supported in Kerstin's grade six program, other learning experiences, such as art, music, drama, kinesthetic/hands-on activities, personal reflections, and group projects, have taken on greater importance in the daily activities.

Kerstin and I discuss components of a good mathematics class. Using the MI framework, Kerstin tries to incorporate several intelligences in her mathematics lessons, for example, mathematical-logical, bodily-kinesthetic, spatial and interpersonal. According to Kerstin, the students should "be working with manipulatives and doing

hands-on activities, not just reading questions from a book" (II, p. 2). In a unit on geometry, she encourages the students to use their spatial skills "to look at and visualize what it [the solid] would be [using a two-dimensional blueprint, or "net"] without actually having made it" (II, p. 2). The students might discuss problem-solving strategies with peers, or review completed assignments in small groups. In this fashion, when Kerstin plans a mathematics lesson, she considers which intelligences she can draw upon to teach the required concepts, skills and attitudes.

Planning the Greece unit. During my first visit to Kerstin's classroom, I notice various wall displays relating to ancient Greece. Knowing that ancient Greece is a social studies topic for grade six, I ask Kerstin to explain how she plans the Greece unit (see Appendix J).

ET: Tell me how you incorporate the different intelligences in the Greece unit.

KH: For *word smart*, we read myths and the students make up their own myths or write about mythological creatures. For *picture smart*, they draw or create a mythological creature that they've written about. In art class, they make Greek vases. For *nature smart*, I do a sky science unit which talks about the different constellations and we discuss how some constellations are named after characters in Greek mythology. For *body smart*, we have a Greek day where students dress up in their Greek togas and we recreate the Olympics, except for the wrestling part (laughter). My Greek day is always a big thing. We go outside for the Olympics and then we come back in and do Greek dances.

For *math smart*, I do geometry, again staying with the provincial curriculum. We know that geometry originated with the ancient Greeks. For *people smart*, the students are involved in cooperative learning groups. I put them in groups of three and each group gets a different topic and they prepare a presentation and report it back to the class.

ET: When you say topic, what might they choose?

KH: The different social needs of the ancient Greeks. One group would have the education system. Another group would talk about the language. Another group might do the government. It's all in the curriculum. If we

look at *self smart*, they may do a writing activity. For example, if you were a god or a goddess, what would you do? What would your special talents or powers be? What animal do you think would best symbolize you?

ET: So what are we missing here? Oh, musical …

KH: *Music smart*, that's always my (laughter) … the one that I have to make sure that I incorporate. I think that's not one of my strengths. Musical … well, we have the Greek background music but that's not really … that's not the true meaning of … I think that's one that I need to work more on. That's one that I need to expand on (laughter). (I, pp. 22-23)

Kerstin mentions that she tries to enhance her unit and lesson plans each year. The 2000-2001 school year is her tenth year of teaching grade six. According to Kerstin, MI theory encourages her to expand her teaching skills. "I think it pushes me as a teacher" (I, p. 24). In another conversation, we return to preferred ways of teaching.

KH: I love reading and writing and I have to be careful to get the balance, to incorporate those bodily kinesthetic activities or to include more of the music smarts. I do have music smarts; I can play the flute and sing to the radio in my car but it's something I have to make sure I'm doing [with the students]. (III, p. 9)

While Kerstin easily focuses upon linguistic and logical-mathematical intelligences, MI theory stretches her to explore additional areas in her teaching practice.

Kerstin's description of planning a unit on ancient Greece does not contain any secrets or revolutionary ideas for teaching practice. Many teachers incorporate elements of the unit as described by Kerstin. The difference is that Kerstin systematically approaches all her units in a similar fashion. She assumes that all students have multiple intelligences and that they can be identified. Kerstin accordingly attempts to create an environment that will meet her students' particular learning needs. The diversity and richness of her classroom experiences are ongoing rather than special, once-a-year events.

Practical Phase: Application

Using an MI student checklist. In September, Kerstin starts the year by asking the students to fill out an MI checklist developed by Armstrong (2000). It lists the eight intelligences and approximately eight to ten types of activities per intelligence (see Appendix E). The purpose for administering this type of questionnaire is so that Kerstin can get to know the students and their strengths, but also to give the students an opportunity to gain a better understanding of themselves. Kerstin explains,

> KH: I ask the students to go through the checklist and indicate which activities pertain to them. At the end, I have them reflect on the checklist. I ask, "According to the checklist and your knowledge of yourself, which intelligences do you think you're stronger in?" Of course, we talk about the fact that each person has all of them; some are just more dominant. I might ask them, "What did you learn about yourself that perhaps you didn't realize before?" (I, p. 10)

Kerstin uses the checklist information to create an MI bar graph on the wall and finds that the results provide good initial data for gaining knowledge about the students. As she gets to know the students better throughout the year, her understanding of their strengths grows. One might question the wisdom of trying to understand students' intelligences. Why is it important? Why not simply deliver the curriculum? Kerstin's approach stems from the belief that it is useful for teachers to build upon strengths (see e.g., Northcott, 2001). The assumption is made that if teachers can discover how children learn – building upon strengths is one such possibility – they can reach more students. Consequently, a greater number of students will experience success in school. To Kerstin, this is an important goal, which also aligns with the school district's vision statement, "to ensure that all students experience success in their individual programs of study."

Empowering students through choices. Kerstin notes that, with added teaching experience, she gives the students greater ownership of their learning. In the beginning of her career, she carefully structured every learning activity for the students, but she finds increasingly that they offer many insightful ideas. Kerstin encourages the students to choose innovative projects that they complete individually or in small groups and then present to the class. She invites them to create rubrics for assessment purposes and believes that this practice increases their understanding of "good work." We discuss a recent project on "clothing" in the grade five French class. Kerstin involved the students in a fashion show at the end of the unit. This project could be serious or light-hearted, with the students writing a script and acting it out. Kerstin explains,

> KH: The students said, "We need to make sure that we use French vocabulary, that it's organized, that it flows smoothly, and that people speak loud enough." I think it's good because you're engaging them and you're involving them. It's not just the teacher saying, "I want this, this and this." They have a say in the project. I have found over the years that kids will, a lot of times, come up with better ideas than I come up with. (laughter) A good teacher learns from the students as well. (I, p. 16)

Kerstin videotaped the fashion show. As she watched it with her students, they analyzed their presentations and insisted on performing them again. Kerstin comments,

> KH: They went back and made some changes and then they did it again. I think it's very powerful that they assess their own performances. I didn't have to tell them that they couldn't be heard, that they were looking at the ground, or that their voices didn't project. (I, p. 16)

Kerstin tries to capture the students' interest by involving them in the decision-making of the production and assessment of their clothing project. She believes that the final product will be of higher quality than if she simply dictates the assignment and assesses it without student input.

Kerstin frequently gives the students choices in acquiring knowledge and demonstrating their understanding. The unit on ancient Greece is an example of providing choices in both the input and output phases of an integrated unit. The students acquire knowledge about ancient Greece through readings, discussions, dramatic renditions, art, and music. They demonstrate their understanding of ancient Greece through written reports, stories and poetry, oral presentations, art (clay; various paint media), music (dance; movement; raps), computer-generated reports (Hyper Studio; PowerPoint; word processing), and drama (vignettes of life in ancient Greece; juxtaposition of a modern radio report, or a television advertisement, in ancient Greece).

Creative use of MI theory.

I am fascinated by Kerstin's ideas for creating a rich and stimulating learning environment. The examples provided illustrate activities that range from innovative long-term projects to daily collaborative endeavors. Each activity has been carefully planned with MI theory in mind. Kerstin takes pride in providing students with learning experiences in the spirit of multiple intelligences.

Star theatre. The Greece unit offers numerous opportunities for creativity. Kerstin tells me about the star theatre in the sky science topic.

> KH: I do the grade six sky science unit at this time of the year because in that unit there is a whole section on constellations and a lot of them relate to the Greek myths. About three weeks ago, I had what is called the star theatre. We went into the music room where it's totally pitch black. We had the star theatre, where it projects all the constellations on the wall so they're using their spatial skills, and then they listen to a tape of the Greek myths. It was like going to the theatre; we made it kind of fun. I brought in some popcorn and pop. You can't go to the theatre without having popcorn and pop, in my opinion (laughter).

> The students loved it. They were quite enthused and as they were listening to the tape, they could sit back and look at the different constellations. (III, pp. 10-11)

I reflect upon the passion with which Kerstin approaches her teaching assignment. She takes pleasure in seeing the students thrive under her tutelage. The star theatre is but one example of how Kerstin endeavors to make learning enjoyable. She wants the students to remember what they experience and realizes that this is more likely to happen if the students are engaged in their learning. Wolfe (2001) notes that "activities such as simulations and role plays are often highly engaging and enhance not only the meaning of the material but also the emotional connections" (p. 109; see also Goleman, 1995; Sylwester, 1995). I recall Plato: "Do not then train youths to learning by force and harshness, but direct them to it by what amuses their minds so that you may be better able to discover with accuracy the peculiar bent of the genius of each" (n.d.).

Ancient Greeks' social needs. May 28, 2002 is set for the presentations of the ancient Greeks' social needs. As I review my classroom observation notes, I recall the feelings of excitement and anticipation that permeate the grade six classroom. Abridged notes follow:

> Geoff is dressed in a long purple sheet and long, black, yarn wig. He walks around and says solemnly, "To be, or not to be." I surmise that the robe makes him feel theatrical although Hamlet is out of context. No problem! Kerstin gets the video camera ready. The students settle. Henrik introduces the presentations.
>
> Group one presents six short skits on *occupations*: common slaves, house slaves, soldiers, metal workers, doctors, and entertainers. The students have researched their topic. They include plausible events in their skits, for example, horrid living conditions of slaves, a doctor bleeding a patient, gymnastics entertainment.
>
> After the presentation, Kerstin asks, "What intelligences did they use?" The students respond, "Body, people, word, and self." Kerstin nods in agreement and indicates that the audience is wonderful.

Group two tapes a poster on the board: WORLD WIDE NEWS. Three people at a table pose as television reporters. One girl talks about the Spartans, their harsh ways, their strict discipline, and their high fitness level. In Sparta, soldiers check the health of infants. If found unhealthy, the infants are starved to death. Girls learn to wrestle so they can give birth to strong, healthy babies.

A commercial break advertises chubby chicken, Nike runners, and an anti-smoking drug!

Another student describes education in Athens. The purpose of education is to produce good citizens. Girls may learn to read and write at home. Boys go to private schools. Poetry and memorization are upheld as desirable. A girl asks, "Have you ever wondered where the word *alphabet* comes from?"

Kerstin asks, "What smarts did they use?" The students respond, "Body, word, picture, people, self."

Group three tapes posters on the wall. This group depicts a family: mother, father, daughter and slave.
Daughter: Today I learned to lie, cheat and steal.
Slave arrives and gives grapes to father.
Mother (to daughter): I will teach you how to cook, wrestle and manage the household.
Father leaves for the Symposium.
Father returns: Where is my money? I saw some babies on the hill. They were abandoned. They live in Sparta. We have more freedom here. Look who I found walking in the dark.
Slave appears carrying a rabbit. (The audience erupts in laughter when they see Soda. It is an unexpected development.)

The group completes their presentation by reading information from the posters.

Group four is ready. They base their presentation on a large poster of a pyramid depicting the class structure in ancient Greece. The group members have renamed themselves Zeus, Apollo and Hephaestus. Apollo plays his lute. They present information in a lively and upbeat way and draw much laughter.

Group five presents Greek language and the alphabet. They have created a beautiful poster.

The room is getting increasingly hot. My attention flickers.

Group six is ready to roll. Five boys present a drama: *From Citizen to Slave*.
The crops have failed; a citizen is arrested and taken away.
Court is in session; James is the judge.

James: Welcome everyone. Sit down. We will be in the assembly for one more year.
The prisoner is roughly brought before the judge.
James: Tie him up. Don't dare say anything or you will be outside.

James: We'd like to welcome Willius. This is the trial of Icarus. He is innocent until proven guilty.
James invites the audience to vote after the arguments have been heard. The audience finds the prisoner guilty.
James: The people have spoken. Julius is looking for a new slave. Take the prisoner away; he will be a slave.

Next scene: Poisoned.
James: Socrates, you must drink this for your bad teaching and poor influences.

My reflections regarding this last presentation read: The longest and most developed play today. Many good details: acting, scene changes with signs (boy ran across the stage with name of upcoming scene), costumes, references to Greek literature, involvement of audience as voters (is he guilty?). James was amazing. His acting ability is *very* strong.

I reflect upon Kerstin's ability to draw every class member into the presentations, and to give the students the freedom to present information that takes advantage of their strengths. Although James is physically challenged, he emerges as a star. His incredible acting skills, his enjoyment of the moment, his articulate and knowledgeable representation of life in ancient Greece are integral to the success of the project. Kerstin's insistence that all students are smart but in different ways creates an atmosphere that is conducive to an acceptance of diverse abilities that work in concert. The gymnast and the orator are able to represent their understanding in different ways, yet Kerstin and the students value both representations.

Greek day. In the morning of June 27, 2001, I arrive at Cloudberry School carrying a king size sheet and a cloth belt – my apparel for the day. Walking through the hallways, I notice various signs that state: "Temple of Zeus." It is Greek day in the grade six room and I have received permission to participate in this resplendent event. Upon

hearing that I am a participant in Greek day, a former Cloudberry teacher exclaims, "You must be special. *No one* goes into Kerstin's room on Greek day."

The classroom is dark and mysterious with long paper strips hanging in the doorway. Greek music is softly playing in the background. I wait quietly outside as I hear Kerstin giving instructions to the students; I do not want to disturb the atmosphere. Candles flicker in the darkness. I see students sitting on the floor, dressed in togas. Some students have wreaths in their hair. Kerstin looks magnificent in a white toga with a gold belt, and a gold tiara in her hair. The students listen attentively to the last-minute instructions for the Olympic Games that are about to proceed. There is excitement in the air.

For late June, it is a bit chilly outside as the students rotate through their stations: discus, javelin, sprint and long jump. I am pleased to see that the boy who is physically challenged enjoys every activity and yells excitedly as he participates in the sprint. At 10:10 a.m., the students move inside. The boys talk about their togas falling off and wonder when it is time to *eat*. The Greek food on the side table looks enticing: pita bread, feta cheese, olives, grapes, strawberries, crackers and "Greek berry punch," but lunch is a long time away. Kerstin urges the students to go out for recess and wear off some energy, "Go, go, go!"

After recess, Kerstin crowns the winners of the Olympic events. The winners receive wreaths, which Kerstin places upon their heads. The other students are working in small groups, preparing poems, chants and songs about the winners. They retrieve rhyming dictionaries from the shelf and engage in lively discussions. Kerstin moves among the groups; she wants them to finish their compositions and present them "in

honor of the victors." Five boys (due to a tie in long jump) and four girls are honored. They look pleased as the groups present songs with body percussion, small rhyming poems, and chants, highlighting the victors' strengths. The feeling tone in the room is friendly and supportive. I feel privileged to be part of this celebratory event.

Endangered animals. Kerstin has been nurturing the students' creativity throughout the year. She happily describes the students' products in the "endangered animals" project.

> KH: I had one boy who wrote a play about his endangered animal, and then he had to enlist two other students to help him perform it. Other students liked to make word games, and a few students made PowerPoint presentations. Two boys who are very advanced in computers made their own web page about an endangered animal. A few students did a traditional report and they were comfortable with that. Other students made a diorama with an accompanying description.
>
> It's amazing to see the different projects that we get. One student wrote a song about her animal.
>
> ET: Really. To what tune? How did she compose it?
>
> KH: Do you know the song, *We will, we will rock you* [by Queen]? She used that tune and wrote lyrics about saving the African elephant. It was wonderful and she even sewed a pillow (laughter). It was neat.
>
> ET: Interesting … and you felt that the quality of all the products was good?
>
> KH: It was exceptional and it was so much better than just getting 25 reports on an animal. The kids were interested and that's the value of MI. You hook the kids, they're interested, they're excited, they want to learn more about the topic, they want to do the project, and when they're motivated and challenged you don't have the behavior problems because they're doing what they want (emphatically). (III, p. 12)

I ask Kerstin how she assessed the animal projects. She explains that the students receive criteria, a rubric created by Kerstin, which describe different achievement levels for the required components. These components include, but are not limited to:

- habitat
- current population
- physical description
- reasons for endangered status
- protection interventions
- project execution

In typical fashion, Kerstin adds, "the project needs to show excellent quality of work, and that will earn you an A" (III, p. 14). Kerstin expects the students to work hard, and she does it through engaging and motivating activities. She endeavors to create a desire in the students to put forth their best effort.

On occasion, I have told my friends that the title of my dissertation could be: *Why I dislike work sheets*. It is not that work sheets necessarily signify bad educational practice. Rather, it is the plethora of work sheets that I abhor, the mechanical filling out of blanks, the rote memorization, the regurgitation of knowledge *sans* comprehension. I speculate that these reasons have influenced my decision to examine a theory that seemingly encourages teachers to expand upon their teaching repertoire.

Using community resources. Kerstin and I discuss the use of community resources and how they support her program. A recent science unit prompts a trip to the local aviation museum where concepts of air and aerodynamics are clarified. The students engage in bodily-kinesthetic activities that demonstrate the difference between yawing and rolling. Kerstin notes, "I think, not just reading and memorizing, but highlighting what those terms are, having them do it, will help them remember it" (I, p. 25). At the museum, the students can see what happens when ailerons and elevators move into different positions on aircraft.

A field trip to City Hall (municipal government) focuses upon council debates, with the students participating in a mock council debate. Similarly, the class visits the

legislature (provincial government) where the students debate a bill. Thus, Kerstin endeavors to bring reality into her classroom. She wants the students to draw connections between what transpires in the classroom and the world outside the relatively "artificial" school setting. A unit on trees and forests incorporates a trip to a nature center. The students collect samples of different leaves, identify the trees from which the leaves originate, participate in a predator and prey game, and learn about food chains. Kerstin hopes that these experiences will help the students understand the required curricular concepts.

Excitedly, Kerstin tells me about a field trip that relates to the grade six China unit,

> For picture smart, art smart we call it, we took the students to a Visual Arts Centre where they work with clay. I had them do the Chinese dragons that are in my room. Other years, we have done the Chinese terra cotta warriors. I always plan the trip for January-February when we do the social studies unit on China. We made Chinese dragons because we had studied dragons in the literature. The students made the dragons and presented them at assembly. They wrote about them in their learning logs. (I, p. 26)

Kerstin is pleased that she can incorporate MI theory in her integrated units. At this point in her career, she has many unit and lesson plans that she has developed over the years. However, there are curricular changes underway and Kerstin expresses her concern.

> Social studies has always been my passion so everything is integrated in social studies. Actually, I was a little devastated when I looked at the recent Western Protocol [a guideline for curriculum]. I haven't read it thoroughly but I thought, "Where is my Greece? Where is my China?" (I, p. 26)

Kerstin's concern relates to the continuous state of flux that permeates today's school world. With frequent curricular changes and an ever-increasing plethora of new learning theories and instructional strategies, the challenge of keeping abreast with current developments can be overwhelming. Kerstin muses, "I have to look at it more carefully

and see if I can still do what I want" (laughter) (I, p. 26). Although Kerstin tends to speak very positively about her experiences with MI theory, we occasionally talk about the difficulties in implementing the theory.

Barriers, problems and dilemmas. Kerstin notes that time is a common problem when trying to learn new skills and concepts. In Phase I of the MI implementation, the teachers struggled to find time to learn about the theory, and they found it difficult to arrange common meeting times to plan presentations for staff meetings. Kerstin observes, "I think it's crucial in the beginning of MI to realize that, step by step, if you can do one thing differently in your class, that's great, not feeling that you have to do it all at once" (I, p. 29).

Kerstin recalls the teachers' response at a recent workshop that she presented at an elementary school.

> KH: I know that when we initially went into that last inservice for Blueberry School, there was a bit of tension and there was that bit of, "Oh what now? (resignedly) Here is something else that we have to do." But the teachers realized that good teachers do a lot of that [MI theory] already. I like to think of MI as a framework. You can look at what you're doing and think, "Oh yeah, I'm doing that and that and I should do a little bit more here, and here is another thing that I can be doing. (I, p. 17)

Kerstin realizes the need to assure the teachers that small steps are preferable. With seemingly increasing expectations from stakeholders, large class sizes, a lack of resources, and multiple students' needs, teachers are scrambling to find a balance in their profession. Thus, innovations that may significantly affect their teaching practice, and their time commitment to the profession, are typically not met with applause.

On a more personal note, Kerstin mentions that she finds it challenging to incorporate the musical intelligence in her program.

KH: Musical, that's always an intelligence that I have to make sure that I incorporate. I play the flute but it's not one of my strengths. We have the Greek background music but that's not really the true meaning of … I think that's one that I need to expand on. (I, p. 23)

Kerstin, in her typically optimistic way, views this obstacle as an opportunity to improve her teaching skills.

KH: This is my tenth year of teaching grade six. Some things I keep the same and some things I change, add, and want to improve upon. I think MI gives me more ideas as to, "Oh, I really should have more in the musical area, so what could I do." It pushes me as a teacher. (I, pp. 23-24)

Kerstin has found, just like Mae, that some teachers hold the mistaken belief that all eight intelligences must be included in every lesson.

KH: You have to be careful in the beginning that you don't overwhelm yourself, and think that you have to include all eight in whatever topic it is you're covering. Realistically, it's not possible when you have such a heavy curriculum to get through. I think as teachers, most of us tend to be perfectionists and we are a little too hard on ourselves, trying to include all the intelligences.

For me, I think that's a challenge when I look at a unit, trying to include some musical type of activities. It's very easy for me to make sure I have lots of word smart activities, or include math. Those are things of course that I am strong in so it's very easy for me to generate ideas in those areas. I guess the challenge is really to try to make sure you are including the different intelligences so you're meeting the needs of those kids who learn best that way. (II, p. 3)

I contemplate Kerstin's comment about perfectionism and conclude that this might be an accurate self-assessment. Kerstin strives for excellence in her teaching practice. In my opinion, the grade six students are not deprived of developing musical intelligence. They receive a music program from a music specialist and have the opportunity to present projects that incorporate musical elements in the classroom setting. At times, Kerstin plays background music when the students work. Still, Kerstin believes that developing

the musical intelligence is an area that needs improvement. She views it as a weak area of her MI theory implementation.

I ponder the nature of theory application. Because MI theory is a theory about human intelligence and not a method, the theory does not provide specific details of application. Thus, Kerstin's mediation differs from what one might find in another classrooms. However, numerous translators of MI theory create methods for easy use. I consider a recent advertisement brochure from SkyLight's BEST BOOKS - Winter 2002. It details information about a book by Chapman: *If the Shoe fits: How to Develop Multiple Intelligences in the Classroom*. The description notes,

> This excellent resource translates Howard Gardner's multiple intelligences theory into practical methods for classroom use. It offers teachers information and "how-to" advice for identifying and developing student strengths. The rich selection of sample lessons and ideas inspires teachers to apply these ideas in the classroom and motivates teachers to create activities of their own. (SkyLight Professional Development, 2002, p. 4)

I turn to the *Oxford dictionary of current English* (Allen, 1969/1988). Theory: "supposition or system of ideas explaining something, esp. one based on general principles independent of particular things to be explained" (p. 780). Theoretical: "concerned with knowledge but not with its practical application; based on theory rather than experience" (p. 780). Method: "special form of procedure esp. in mental activity; orderliness, regular habits" (p. 462). Methodical: "characterized by method or order" (p. 462).

I speculate that these terms are used interchangeably, that part of the division between theory and practice is caused by the faulty notion that theory equals method. However, theory does not specify application. Any one theory can be applied in

numerous ways. Method, on the other hand, is often based upon theory, and relies upon specified procedures. Thus, theory is non-prescriptive; method is prescriptive.

Clearly, translators who create methods based upon theory provide ideas for implementation, yet I do not believe that Kerstin or Mae simply take someone's method (e.g., using specific lesson plans, addressing all intelligences within certain time restrictions) and apply it in linear fashion. They look to examples of mediation and decide whether a certain idea, or a particular lesson plan, might work in their classrooms. Yet, their mediation processes appear to be personal journeys, trial-and-error endeavors, that are greatly influenced by the context. In spite of structured professional development and common teaching resources, the teachers ultimately make the decisions about which form MI theory will take in their classrooms.

At times, Kerstin laments the lack of colleagues, outside Cloudberry School, with whom to collaborate. She wishes that there were a school nearby where she could observe other MI implementation efforts. However, she has found no other such school within a reasonable travel distance.

> ET: Have you talked to teachers from other schools in the district, or in the province, and just asked them, "So what are you doing?"
>
> KH: To be honest with you, nobody really seems to know very much about MI at this point. That's why I was asking you yesterday, "Do you know of any MI schools nearby?" I would like to go back to the Richmond School and see what they are doing. Too bad it wasn't half an hour away to have people to connect with. I am excited about going to Harvard this summer [Project Zero Institute] to hear what others are doing and to gain ideas. For now, I read the books and go on the Internet every now and then, trying to find things. (I, p. 17)

The isolation of the classroom is apparent in this conversation. Kerstin has found no other grade six teachers with whom to collaborate and to share ideas. For a person who thrives

on collegiality and teamwork, Kerstin finds it challenging not to have a partner in a shared context. A shared context would ideally include a teacher at the same grade level and in the same school district, or at the very least in the same province, which guarantees a shared curriculum. Although the Internet provides an avenue for sharing ideas, it also contains barriers that can hinder collegiality, whether real or self-imposed. Some of these barriers may include lack of familiarity with the communication format, lack of trust in someone that you have not met in person, diverse classroom contexts, and perhaps the "coldness" of the computer medium.

Kerstin and I discuss misconceptions about MI theory application. One such belief is that the theory can only be used in elementary schools. Kerstin disputes this notion and refers to a presentation at the Eighth International Thinking Conference (1999) in Edmonton, Alberta.

> KH: There was one lady from the States who taught at a college and she shared examples of different things she had been doing and how much more successful her program and her achievement results were. She accredited that to using MI. (II, p. 11)

We talk about the seeming lack of knowledge about MI theory and Kerstin remembers a question from a recent Leadership Institute. "That leadership course that Mae and I took, one of the gentlemen in our session said, 'What is MI? I have never even heard of it.' And I think that's common. They don't even know" (II, p. 11). This phenomenon is not surprising. Although some educators consistently pursue professional development and try to stay abreast of recent developments, others are just as happy to carry on with a teaching model with which they are comfortable.

Similar to Mae, Kerstin finds the naturalist intelligence difficult to understand.

KH: That's a hard one. I know when we learned about it as staff; a lot of us questioned it. How is this really different than the logical intelligence and the fact that you are classifying or sorting things. In my own mind, I tend to equate the naturalist with classifying things in nature, but I know it goes beyond that. I remember an example; if a car drives by and you can identify it as a Ford, that's the naturalist, or if someone runs by and you can identify their Nike runners, that the naturalist (laughter). That's one that I know some of us still struggle with.

ET: I think Gardner has been heavily questioned because of that, because people are now joking about … well is there going to be a ninth or a tenth?

KH: There is. On that sheet I was reading and in that book I started reading, that book by Bruce and Linda Campbell, the existential intelligence.

ET: Yeah, but he hasn't quite launched it yet (laughter). (II, p. 7)

The naturalist intelligence has caused some grief to those who publish teaching resources, since any resource with only seven intelligences is obviously outdated, yet I speculate that this is not Gardner's concern. I surmise that he views MI theory as evolving, and that future additions are highly plausible if a candidate intelligence meets his established criteria. Currently, Gardner is collecting data on the existentialist intelligence in order to determine if it fulfills the criteria for inclusion.

Kerstin and I discuss assessment within the MI framework.

ET: Do you think that the system imposes certain restraints or restrictions on assessments since we have to assess in subject areas?

KH: I know there has been progression in different areas [intelligences] but as far as documenting it, we don't assess it on report cards, saying, "Jennifer has shown progress in her naturalist intelligence."

ET: Do you believe that intelligences can increase?

KH: Of course, they increase. That's why we do this (laughter).

ET: Talk about that a little bit, how you see that.

KH: You see such progression with your students over the year. Geoff is developing his people smarts; Andrew's written work is getting much

better. I could go through my class list, one by one and tell you how they've progressed throughout the year. I truly believe that it is because they're in an atmosphere where they are provided with different opportunities, different choices, just a variety of things so they can push themselves, or they can try new things and feel comfortable with taking risks in different areas.

ET: Do you think that the intelligences are like potentials that can be developed? We can all be stretched but some people can go higher than others, and everyone has the potential to do something with each intelligence.

KH: I think Howard Gardner states that everyone has the potential to develop each intelligence to an adequate level and some are stronger than others. (III, pp. 7-8)

The school district has firm guidelines for reporting progress to parents and it is not possible for Kerstin to deviate from this format. I find it interesting, however, that Kerstin could go through the class list and give an assessment on the students' intelligences. As we reflect upon individual students, I am impressed with Kerstin's depth of knowledge about her students. I reflect upon whether MI theory has helped her gain this deep understanding of their strengths.

Practical Phase: Reflection

Exemplary teaching practice. The quest for excellence is a theme in Kerstin's work. She strives to be an excellent teacher just as she expects her students to put forth their best effort. Kerstin views MI theory as a tool to assist her in developing effective teaching skills. "MI theory makes me a better teacher. It makes me more aware of the different ways that people learn" (I, p. 18) As she reflects upon her daily practice, she finds that the theory encourages her to venture into areas that she would normally not consider. "I like to think of MI as a framework. You look at what you're doing and think, 'Oh yeah, I'm doing that and that, and oh, I should do a little bit more here, and here is

another thing that I can be doing'" (I, p. 17). Kerstin continually adjusts her unit and lesson plans in order to enhance them. "Some things I keep the same and some things I change and add and want to improve upon. I think MI gives me more ideas" (I, p. 24). Kerstin involves the students in creating assignments and projects. She believes that the quality increases when the students take ownership of their learning.

> KH: In the past, I told them, you have to do a picture, you have to do a report. I think it will be better when they make more of the choices. I know it will be better (laughter). It will be more creative and I think we'll get more variety. (III, p. 12)

Reflecting upon students' strengths. Kerstin and I talk about the diversity in the grade six room. The students come from many different cultures, and several of them speak languages other than English in their homes. A few students have recently arrived at Cloudberry School. I ponder the difficulty in getting to know the students in this fluctuating and heterogeneous environment. Yet, Kerstin is not daunted. She seems to know the students intimately and to understand what makes them tick. She has assessed their strengths and talks readily about her students.

> ET: How do you determine the students' strengths?
>
> KH: Just as you get to know the children, observing them, interacting with them. In the beginning of the year, I have them all do a questionnaire, just to get an idea of their perception as to where they are as well. But you can tell by working with them; it becomes evident [Project Spectrum is based upon observations that help teachers determine students' strengths].
>
> ET: Do you feel that the questionnaire was fairly true to what you found later in the year?
>
> KH: I think so. By grade six, they know. They have a good perception of themselves and what's easy for them and perhaps what's more challenging. (III, p. 2)

I ask Kerstin to tell me about specific students' strengths (all names are pseudonyms).

Andrew.

KH: Andrew has *all* of the eight intelligences, as all students do. Andrew's strength is very much logical-mathematical. He is very good at problem-solving and the entire class can be stuck on a question and he'll figure it out. He is also very bodily-kinesthetic. He is very good when we are building things. He has a very strong visual-spatial intelligence. He can figure out how things go together. Those are his top three.

His word smart, his linguistic, is the one that is not his strength. He struggles with reading, he struggles with writing, but he is getting better. (III, p. 1)

Geoff.

KH: Geoff is very word smart. He is very smart in reading and writing, beyond grade six. He's actually an academic challenge student as well. The logical-mathematical is very strong for him. He has great difficulty with the interpersonal intelligence, choosing appropriate comments and behavior or interactions with his peers. It has gotten better since the beginning of the year, so we're getting there. (III, p. 1)

ET: How about picking a girl?

Natasha.

KH: I'll pick Natasha. She is very much an example of someone who demonstrates a lot of intrapersonal intelligence. She's very much to herself and reflecting. She has the social skills to interact with others appropriately, but when it comes time for choices, she is a perfect example of a child who would rather do it by herself. That's her preference. (III, pp. 1-2)

ET: Do you have some students whose strengths lie in many areas?

Carlos.

KH: Carlos comes to mind. He is an all around kid who is pretty good at everything, math, reading skills, his word smart. He is able to interact with others, so that's his people smart. He is able to reflect on his assignments, the process and how it went, and what he could do differently, so he is self smart. He is very good in music and his art pictures are incredible. It's not often that you meet a child like that.

ET: If I looked at his report card, I would see mainly As?

KH: You would see *only* As (laughter), and that has been his record since the beginning.

His effort is outstanding. This is a kid who is an exceptional role model to everybody in the class. Often, I have found that kids who are strong academically tend not to get along with some of the other kids. They are not necessarily well liked but Carlos is one of the most popular kids in the class.

ET: Wow!

KH: They respect him, they admire him, they know he works hard. (III, pp. 3-4)

ET: Let's go to the opposite. Do you have a student whose strengths lie in few areas?

Jeremy.

KH: I'll pick Jeremy. He's very strong in bodily-kinesthetic. He likes manipulatives and working with things, and he'll understand better if he does that. He is very much a people person, very kind-hearted and really perceptive to how others are feeling. He is one of those kids who always helps others too. Those are his two strengths, but this is a child who very much struggles with the reading and the writing and the math is difficult, and the music is okay and the art is okay. (III, p. 4)

We discuss the students' progress during the course of the year. Kerstin mentions that she has seen growth in many weak areas. The improvement in Andrew's writing skills and Geoff's interpersonal skills are examples of such growth. I ask Kerstin if there are students whose strengths she does not know because they might not share perceptions about themselves. Kerstin believes that through different media of expression, for example dialogue or journal writing, or through observation, she gets to know the students.

The notion of building upon students' strengths is intriguing. Kerstin and I reflect upon students whose weak areas have improved because they have drawn upon strengths.

For example, Andrew's written work improves when he can use the bodily-kinesthetic intelligence to first understand the concepts.

KH: If I think of science experiments where he's actually doing them and has done the hands-on part, he understands the concept, then when he goes to writing about it, he's more able to do it because of that experience, because he's very much a bodily-kinesthetic learner. That's true for most kids.

Another strategy that works well for Andrew is people smart. If I have him working with a partner, if they are talking and brainstorming ideas and working together, then getting him to write after is much easier. Again, this is true for most kids but especially for him.

That's where you use their strengths, the bodily-kinesthetic or the interpersonal intelligence, and use those to help nurture the writing, instead of just saying, "Okay, I want you to write a one-page persuasive paper on not smoking." (III, pp. 5-6)

ET: Can you pick a student from this year's class where you think MI has been particularly helpful?

Jennifer.

KH: I'll pick Jennifer who started off the year an average student, putting in satisfactory effort and doing okay, maybe getting 70s, a typical B student. She's really blossomed this year. Her self-confidence has developed nicely, and that comes from her drama work as well. Working with Nellie [grade four teacher who directs extra-curricular drama club] in the drama class and having a key role in the play, you can see how confident she is. She is really putting that kind of effort into her other assignments.

On her last report card, she had As in almost every subject. I really believe that the strength of MI, or the power of MI, is recognizing what kids are good at and giving them opportunities to develop their strengths. Then they can tackle the things that maybe aren't so interesting, or aren't so exciting to them, and to do them better.

When students see the excellence demonstrated by their classmates, and they hear the comments, "That's really great" and "You did such a good job," and they see that excellence, they want to strive for that too. I honestly don't believe that there is any child who will get a test back with 33% and be happy with that. I think nobody wants to feel like they are dumb or they're not smart. They all want to do well. (III, pp. 5-6)

Kerstin uses MI theory to understand students, to reach students, to talk about students, and to teach students about themselves. She mediates between the theory and the students in multi-faceted ways. Kerstin notes that she uses MI theory all the time. I find it difficult during observations to isolate MI theory application in Kerstin's classroom. One might conclude that the theory is interwoven between many other phenomena that transpire in this highly complex environment. Perhaps this dilemma is par for the course in the swamp.

Chapter VI

NATURE OF THEORY APPLICATION

In this chapter, I discuss the data presented in chapters IV and V in order to illuminate the nature of theory application. From this discussion, I submit possibilities for improvement of the theory practice relationship. I divide the chapter into five parts:

1. *Analysis of MI theory application at Cloudberry*. In order to use the Cloudberry cases to help us understand more fully the nature of theory application, we need to determine whether we have a case of MI theory application. We must address this issue because there are other possibilities. Kerstin and Mae might have misapplied the theory, or their use of MI theory might be so far off the mark that it cannot even be called a misapplication. In order to assess whether the data describe a genuine case of theory application, I compare and contrast how the Cloudberry application aligns with my own expectations for MI theory application, and with Gardner's suggested use of MI theory. I discuss arts that bring the theory to its application.
2. *Reflecting upon the data in light of the literature*. Having determined that we have a genuine case of theory application, the discussion moves from the specifics of MI theory to the broader realm of theory practice relationships. I explore ways in which the Cloudberry cases align with views on theory application in the literature. What points do the cases confirm; what points do they disconfirm? I discuss origins of knowledge, ownership of theory, precise and non-precise theory application, and collaboration between theorists and practitioners.
3. *Alternative ways of viewing the nature of theory application*. The Cloudberry cases bring forth elements of theory application that go beyond what is reflected in the

literature. The data give rise to alternative ways of viewing the nature of theory application. In this section, I continue the discussion of arts that bring theory to its application, specifically the role of values and beliefs, and the notion of "theory application as construction."

4. *Implications*. The discussion raises points that have a bearing on the theory practice relationship. With an aim to strengthen this relationship, I propose areas for further consideration and possibilities for improvement. Areas for consideration include the ownership of theory, the role of theory in pre-service teacher education, communication between theorists and practitioners, collaborative projects between university-based researchers and school-based practitioners, access to theory, and use of theory.
5. *Conclusions*. I review the contributions this study makes to the literature and to furthering an understanding of the nature of theory application. I include some personal reflections at the end of the chapter.

My research emerges from a desire to gain an understanding of the nature of theory application. I have purposefully selected for study the mediation between MI theory and students in two elementary classrooms in order to investigate the research problem. This approach grants me insights into "arts which bring a theory to its application" (Schwab, 1969, p. 12). It illuminates the forces at work during the application of an "outside" theory in a naturalistic setting. It provides increased appreciation for the elements of change and reform in an elementary school.

The following question guides my research:

How does mediation of MI theory inform the nature of theory application?

The theory exists as an abstract notion of reality and "comes to life" when applied. In the case of MI theory, Gardner contributes a hypothesis about intelligence. The teacher in the classroom takes Gardner's theory of intelligence and makes it real through mediation; thus, the theory becomes tangible. No longer strictly an abstraction, the theory has become an enacted thought, a manifestation.

An important point to note related to Gardner's influence on MI theory application is that the direct link between Gardner and the teachers is tenuous. All we can establish with reasonable confidence is that teachers who use MI theory know the names and characteristics of the multiple intelligences (eight, if they have read recent sources, seven, if they have read only pre-1997 sources), and that these intelligences need to be developed. Although Gardner provides suggestions for the use of MI theory, teachers have not necessarily come across this advice in its original form. In my experience, teachers are more likely to read "how-to" teaching resources by MI translators than Gardner's books. In the Cloudberry case, the teachers had not read either *Frames of Mind: The Theory of Multiple Intelligences* (1983/1993a) or *Multiple Intelligences: The Theory in Practice* (1993b).

What can be learned from this research? I have elected to study two teachers and their experiences with MI theory. Using a case study account – a thick description – of theory application, and interpreting it in light of the literature, I initiate the development of a theory of theory application. I argue that there is no clear-cut approach to theory application. Applying theory is inexact business; this is the nature of theory application. In practice, the use of theory is often filled with messy trial and error experiments, trying out possible solutions, struggling with different meanings, and attempting new ways of

doing the work. In this chapter, I pursue a line of thought that starts with a close look at the data (the known) and takes us to the possibility, and implications, of a changed worldview (the unknown).

Part I: Analysis of MI Theory Application at Cloudberry

Theory application in the classroom displays elusive boundaries. A question of containment arises: How does one know if MI theory is applied? The need for guidelines becomes apparent, or anyone could claim to apply MI theory in any haphazard fashion and thus make the notion of theory application meaningless. In my selection of teachers for the case study, I used criteria to help me select teachers who had a thorough understanding of MI theory application.

Similarly, when assessing whether the Cloudberry application is a legitimate representation of MI theory in practice, I use criteria to help me make this judgment. To establish these criteria, I draw upon my own knowledge of MI theory, taking into account examples of MI theory application from the literature, and Gardner's suggested use of the theory.

General Expectations

In an MI setting, I would expect to see evidence of MI theory in daily practice. I would expect to find visual representations of the theory, for example, posters with descriptions of the various intelligences, or student work that incorporates the use of different intelligences. I would expect to hear teachers use MI language – referring to the eight intelligences – as they talk about teaching and learning. I would expect students to have some knowledge about the eight intelligences and an age-appropriate understanding of MI theory – "everyone is smart but in different ways." I would expect teachers to plan

for instruction with the multiple intelligences in mind, and to be mindful of addressing the eight intelligences on a regular, but not prescribed, basis. I would expect to see teaching resources that offer ideas on how to use MI theory in the classroom.

I have purposefully selected broad criteria because MI theory application is non-prescriptive in nature. Gardner states in an article: "Let a hundred flowers bloom" (1995, p. 206). Gardner (1993b) further notes in *Multiple Intelligences: The Theory in Practice* that "there is no recipe for a multiple intelligences education" (p. 66) and that "it is fitting that a program rooted in the celebration of individual differences … should itself generate a family of highly individualized approaches" (p. 111). Even so, Gardner offers suggestions for "education in the 'spirit' of multiple intelligences" (p. 66). In addition, the book describes several examples of MI theory application from the field that, in Gardner's opinion, have proven effective.

In the following sections, I compare and contrast critical components of Kerstin's and Mae's applications with selected criteria based upon Gardner's suggestions.

Evidence of MI Theory

There is no mistaking that MI theory is a vital component at Cloudberry School. Descriptors of the theory accompany student work in the library, hallways and classrooms. The teachers and principal talk about MI theory in professional dialogue, and frequently refer to the theory when they discuss teaching and learning. The students have an understanding of the theory, and can articulate their own strengths and weaknesses. Kerstin and Mae keep MI theory in mind when planning for instruction; they use locally developed MI planning sheets to generate long-term, integrated units. The teachers incorporate various intelligences in their daily lessons. To this end, they extend their

lessons to include multi-faceted learning experiences that address various intelligences. Evidence of MI theory can be found in every subject area, throughout the day. To help the teachers gain further knowledge and understanding of MI theory and its possible applications in the classroom, numerous teaching resources have been placed on a cart in the staff room. MI theory has clearly become part of the school culture.

Alignment With Gardner's Views on MI Theory Application

I have selected for further analysis five key components from the Cloudberry data that align with Gardner's (1993b) suggested use of the theory:

1. providing a rich learning environment (individual-centered education, cooperative learning);
2. valuing students' strengths (heightened awareness of strengths, productive use of strengths);
3. presenting choices in input and output (diverse instructional practice, student choice);
4. using projects (short-term, long-term); and
5. teaching for understanding (constructivist approach, delving deeply into subject areas).

These key components can be viewed as "arts that bring a theory to its application" (Schwab, 1969, p. 12). In its abstract form, MI theory describes the human mind. In its practical form, the theory takes shape in artifacts or observable behaviors such as providing a stimulating environment, valuing students' intelligences, presenting students with choices, using projects, and teaching for understanding. Although there is no recipe for implementation, the literature on MI implementation efforts and my own classroom

observations indicate that some or all of these components exist in classrooms where teachers use MI theory as a framework for instruction.

These five components by no means comprise all of the arts used in implementing MI theory. Kerstin's and Mae's many split-second decisions – "you're math smart, why don't you help that group" – made in "the spirit of multiple intelligences" (Gardner, 1993b, p. 66), or their use of MI graphic organizers when planning for instruction, are additional examples of arts that bring the theory to its application. For the sake of containment, I restrict the analysis to the five components selected.

Providing a rich learning environment. The physical environment of the grade three and six classrooms is esthetically pleasing and stimulating. The rooms abound with colorful displays, consisting primarily of student-generated art and reports. Several hours could be spent examining the various displays. The high level of quality and the variety of the displays make a strong impression; there seems to be "something for everyone." Fine arts and academic subjects intermingle comfortably. Both genres have been allotted significant space and attention. A computer for student use is easily accessible in the grade three room. Different centers can be found throughout the grade six room, in addition to the resident rabbit. Comfortable reading corners and places for group work exist in each room. During my classroom observations, I reflect upon how fortunate the students are to attend school in such a rich learning environment.

In addition to this stimulating physical setting, the teachers engage in what Gardner (1993b) refers to as "individual-centered" education. According to Gardner, this type of education involves cooperative learning and "taking seriously each child's own proclivities, interest, and goals, and, to the maximum extent possible, helping the child to

realize those potentials" (p. 74). During my classroom observations, the grade three and six students engage in daily cooperative learning activities. Kerstin has taken intensive training in this area and employs various techniques as developed by Johnson and Johnson (1982) and Kagan (1994). These techniques include Round Robin, Think Pair Share, Summary Pairs Check, and Jigsaw. Mae similarly makes use of various collaborative group strategies in which the students solve problems or create products.

In the spirit of individual-centered education, the teachers also have a keen awareness that students come in all sizes and shapes and with different proclivities and potentials. Thus, there is an atmosphere of acceptance in both classrooms. Teachers are comfortable with student differences and students feel good about themselves; some are math smart, others are body smart, but all are intelligent and valued for their strengths. Gardner (1993b) notes:

> Were such an individual-centered education to be pursued, it should lead to a happy situation—one in which an increasing percentage of student find their métier, feel better about themselves, and are perhaps more likely to become positive members of their community. Where there is only one standard of competence, it is virtually inevitable that most students will end up feeling incompetent; and this is particularly true when that standard happens to favor a narrow band of intelligences. (p. 74)

I return to Plato (n.d.): "Do not then train youths to learning by force and harshness, but direct them to it by what amuses their minds so that you may be better able to discover with accuracy the peculiar bent of the genius of each." Plato's notion of engaging students through diverse learning experiences aligns with Gardner's views on individual-centered

education. Presumably, if children have the opportunity to shine in areas of strength, due to a rich and multi-faceted learning environment, a sense of accomplishment will occur in a greater number of students.

Gardner notes that individual-centered education – a rich learning environment – should lead to a happy situation (1993b). The concept of happiness is one that I find in each classroom. The teachers talk about having fun. The students talk about fun. This is obviously something important to both teachers and students. But is school about having fun? Is education not supposed to focus on work, rigor, and attaining the standard of excellence? Gardner notes that he embraces academic rigor. The teachers likewise speak of achievement exams and quality products. Interestingly, the students in Kerstin's and Mae's classrooms are seemingly happy *and* achieve high marks. Perhaps the word fun means to have a determined passion. I surmise that the MI approach in these classrooms promotes more intense efforts by the students to produce their best work since they feel valued and capable. The students know that they are capable in at least one area. Everyone is smart! Recognizing and valuing students' strengths thus produce noteworthy gains in areas of weakness. Although this topic is not *the* focus of my dissertation, it is one that I find particularly intriguing. I speculate that recognizing and valuing strengths might cause significant motivational effects on the students.

Valuing students' strengths. In order for the teachers to value the students' strengths, or intelligences, they must first determine what these strengths are. They employ several strategies for identifying each student's strengths. Mae asks the students to bring items to school that are of particular interest to them. From these items, she gains a greater understanding of their interests. She sometimes uses a student interest inventory.

During the year of my data collection, Mae did not use a student interest inventory since she team-taught with an intern teacher and had over 30 students in her class.

Kerstin uses a written student MI checklist developed by Armstrong (2000). Based upon this checklist, she asks the students to identify their top two strengths and posts the results in a bar graph on the wall. She tells the students that this is one way of learning about their strengths, and presents the information in a friendly and low-key manner. The checklist is not a test; neither does it indicate a hierarchy of intelligences. It is used as a fun, getting-to-know-each-other activity in the beginning of the year. Kerstin fills out a checklist about herself while the students complete theirs. Her results are part of the bar graph.

More importantly than these snapshot assessments are the observations that Mae and Kerstin make during the year. Their sensitivity to the students' intelligences has been heightened by their knowledge of MI theory. They look for students' strengths in the eight intelligence areas. They expect students to have strengths in diverse areas. They are happy to value strengths in areas that are not traditionally viewed as intelligence. For example, it is rare to think of a student who shows aptitude in physical education, but not in mathematics and language arts, as intelligent. However, Kerstin and Mae talk about students as being body smart. I note that both teachers refer to the students in terms of "smarts." Kerstin describes a particular student who is math smart and likes to help other students with their math problem solving. Some of Mae's students are music smart and enjoy creating jingles during recess. Gardner (1993b) notes, "For the most part the teacher can readily observe a child's interests and talents over the course of the year, and

no special assessments are needed" (p. 92). I find, in our discussions about students, that the teachers analyze student behaviors in terms of multiple intelligences.

In conversations with Mae, I often ask for her opinions on my classroom observations. Almost without fail, we turn to MI language as we try to understand the students and their strengths. Reflecting upon these informal chats that occurred during recesses, lunch breaks and after school, several examples come to mind: Kevin whose leadership role became apparent in the group setting (people smart); Sandra who loses track of time and place as she becomes engrossed with an art project (picture smart); and Fernandez's strong interest in the isopods and their well-being (nature smart). In Mae's classroom, these students have strengths that are valued. In a different setting, they would likely be considered "weak" students with behavior problems. For each of the students, Mae has found a way to use their strengths productively. She capitalizes on what they can do, and what they enjoy to do, and uses this knowledge to encourage them in areas of weakness.

Kerstin and I also have rich conversations about students' strengths. At this age level, feelings of self-worth are more pronounced. We reflect upon the twins whose academic careers have blossomed during their grade six year. One of the twins attributes it to empowerment due to multiple intelligences:

> If some people think you're a dumb kid, go with eight smarts. You won't be called a dumb kid after that. You will learn stuff you never knew before. You will be getting As and Bs on your report card. Your parents will be proud of you and your ability to give your best.

Kerstin and I ponder the fate of another student who has made significant academic gains this year. Kerstin believes that it is increased self-confidence that has caused the improvement in this girl's assignments and test results. Kerstin notes: "I really believe that the strength of MI, or the power of MI, is recognizing what kids are good at and giving them opportunities to develop their strengths." Gardner (1993b) concurs:

> It is of utmost importance that we recognize and nurture all of the varied human intelligences, and all of the combinations of intelligences….If we can mobilize the spectrum of human abilities, not only will people feel better about themselves and more competent; it is even possible that they will also feel more engaged and better able to join the rest of the world community in working for the broader good. (p. 12)

Mobilizing these combinations of intelligences, since they rarely operate in isolation, requires diversity in both input and output stages. Let us examine the diversity found in Mae's and Kerstin's instructional practice.

Presenting choices in input and output. Programs that draw upon MI theory take different forms. Considering three approaches that originated from collaborative projects between Harvard researchers and school practitioners, and upheld by Gardner (1993b) as good examples of MI theory application: Project Spectrum, the Project Approach in the Key School setting, and Arts PROPEL, I am struck by diversity as well as common themes.

Project Spectrum focuses upon the needs of young children by means of multiple intelligences centers and a thematic approach to learning. Practitioners engage in keen observations of student behaviors and determine students' strengths based upon their

interest in, and interactions with, various centers. An intelligence profile on each child is provided to parents at the end of the year.

The Key School, Indianapolis, stimulates students' multiple intelligences each day. The school has close ties with the community, and students are asked to carry out three projects each year related to a theme. Assessments of projects are based upon five considerations: (1) individual intelligence profile; (2) mastery of facts, skills and concepts; (3) quality of work; (4) communication; and (5) reflection.

Arts PROPEL has strong ties with the artistic community. This model attempts to demystify arts instruction by moving it from emotion, magic and intuition to a systematic arts education approach in which students are taught to think and experience artistic projects in similar ways as practicing artists. Subject area experts coach children in apprenticeship models. Arts PROPEL focuses upon competencies in music, visual art, and imaginative writing.

From these brief descriptions, we see a common focus on developing diverse intelligences and the use of various projects. However, the instructional approaches are vastly different. Project Spectrum offers MI centers for young children. Teachers at the Key School address all intelligences every day, and Arts PROPEL uses an apprenticeship model.

Similarly, in my study, Mae's and Kerstin's individual teaching styles are not compromised by MI theory application. Neither teacher feels that she has to fit into a mold. Rather, they interpret and apply MI theory in individualistic ways, allowing their own strengths to come to the fore, yet stretching in areas of weakness. Thus, language arts input in one room may consist of a song – helping students to remember sequence in

a text – while, in the other room, it may take the form of oral reading, graphic organizers, and discussion. In Gardner's (1993b) words: "Nearly every concept worth understanding can be conceptualized in a number of ways, and represented and taught in several ways as well" (pp. 229-230). Thus, he argues, the "entry points" to concepts can vary from "the aesthetic and the narrative at one extreme, to the logical, the philosophical, and the experiential at the other" (p. 230). Using these multiple entry-points, the students access information in diverse ways and thus develop particular intelligences.

The output in an MI classroom is also characterized by variety. The teachers invite diverse ways of demonstrating knowledge. They know that a paper-and-pencil approach is not the only way to communicate understanding. Thus, they overtly encourage different forms of expression. Kerstin mentions that some students in the beginning of the year take the "safe route," such as a traditional book report, but venture into uncharted territory when they see their peers taking risks and trying innovative ways of demonstrating learning. In my classroom observations, I particularly note this type of initiative in student projects.

Using projects. In both the grade three and six classrooms, the students make numerous choices when working on projects. In Mae's grade three room, students create "extras," or mini-projects, that they bring to school. These projects take various forms, for example, an illustrated report in book form, a puppet theatre with paper figures on popsicle sticks, a diorama (three-dimensional model) in a shoe box, or an artistic rendition with accompanying explanations. The projects appear student-generated, as opposed to parent-generated; they are not perfect but they show considerable effort. The students are proud as they "show and tell" their extras.

Kerstin's students are engaged in numerous projects in the ancient Greece unit. By the end of this unit, they have studied the physical, social and psychological needs of the ancient Greeks, and the origins of democracy and astronomy. They have delved deeply into another civilization and tried to understand similarities and differences between this ancient society and their own modern context. They have considered the distinctiveness of the Spartans. They have studied Greek art, and have read, listened to, and dramatized various Greek myths. In addition, they have created their own myths.

Gardner (1993b) notes that "most productive human work takes place when individuals are engaged in meaningful and relatively complex projects, which take place over time, are engaging and motivational, and lead to the development of understanding and skill" (p. 224). In my own schooling experience, the project that stands out as most significant was the Nile project that a group of four girls, of which I was one, executed in grade six. The authenticity of this project motivated us to search for information about the unknown. It inspired curiosity and provided a sense of accomplishment. The building of the Nile encouraged scientific inquiry. We hypothesized about our "true-to-life" model and altered our approach as we gained more data. Rolf Tengström, our teacher, allowed us to explore and to create meaning over time. We found information; we conducted experiments; and, best of all, we experienced a sense of control. The project was ours; we devised it, and we executed it. Sadly, I do not remember other projects like it in my own schooling career.

In assessing the Nile project, we generated a paper-and-pencil test for our classmates based upon information that we taught them. In Kerstin's room, I note four of Gardner's (1993b) suggested assessment components for projects (see Key School in

Input and Output section, p. 182). Kerstin consistently shares criteria for completion of projects, typically in the form of rubrics. These rubrics assist the students in attaining mastery of facts, skills, and concepts, a high quality of workmanship, and strong communication skills. Kerstin encourages personal reflections using journals or self-assessment.

In reviewing the completed projects, I note that the quality of student work is unusually high and that the projects span a range of intelligences. The students enjoy creating them, and often choose to include music, art, dance, drama, models, games, graphs, videos or computer-generated products. However, they are also required to generate substantial written products as part of the projects, and there is always an oral presentation as a culminating activity. Kerstin's rubrics include both non-traditional and traditional components. When Kerstin shows me the projects, she is proud that most of the students will receive a mark of A for their efforts.

The projects that I observe at Cloudberry resemble the ones described in Kornhaber's (1999) SUMIT study. These projects support the use of multiple intelligences, but are not bound to equal prevalence or frequency of each intelligence. The SUMIT teachers note that the projects engage the students, and that they support "authentic" learning experiences, bringing real life experiences into the classrooms. MI theory is used in the planning phase and serves as an instructional framework.

Several reasons exist for comparing the Cloudberry projects with the SUMIT projects. The SUMIT study was conducted by Kornhaber who has worked with Gardner at Harvard University. In addition, Gardner endorsed the SUMIT study as one that I

might wish to investigate (personal communication, July 28, 2001). I therefore consider the SUMIT study to be an example of genuine MI theory application.

Teaching for understanding. Another "art that brings the theory to its application," and that aligns with Gardner's suggestions for MI theory application, is Kerstin's and Mae's attempts to teach for understanding. Both teachers are masterful in involving students in self-directed learning, employing reflective thinking, cooperative learning strategies and longitudinal projects. Gardner (1999b) notes, "In a constructivist classroom, students continually try out ideas and practices for themselves and see where they work and where they prove inadequate" (p. 13). Kerstin and Mae believe that students must come to an understanding themselves, that teachers cannot *give* the students an understanding. In Mae's words, "I want the students to have the "ahas." During my classroom visits, I observe that the students are continuously engaged in active learning, whether through one-on-one interactions with partners, small group work with peers, or delving deeply into topics of interest (see also Gardner & Boix-Mansilla, 1994).

Discrepancies

Although I believe that Kerstin and Mae teach in the spirit of multiple intelligences, there are discrepancies between Gardner's (1993b) suggestions in *Multiple Intelligences: The Theory in Practice* and the Cloudberry applications. For example, the teachers at Cloudberry do not generate marks based upon the multiple intelligences. Their assessments are constrained by school district policy and follow a traditional subject assessment model. Other constraints imposed upon their practice are the number of minutes allotted to each subject area. This system, imposed by the provincial

government, makes it impossible to spend comparable time addressing the multiple intelligences. Music may, for example, get 10% of the language arts time allotment.

Kerstin and Mae make some use of community resources but do not employ an apprenticeship or mentorship model. They do not have an assessment specialist (for determining students' intelligence profiles), a student-curriculum broker (who helps students choose suitable courses), or a school-community broker (who finds appropriate mentors for students). Kerstin and Mae do not use the museum model, other than for occasional fieldtrips.

In the Canadian context of this study, some of the suggestions offered by Gardner and co-writers seem highly idealistic. To imagine that thousands of students, on a regular basis, would visit museums, aquariums, art galleries and the like, seems implausible. Similarly, to imagine that community mentors, for example, writers and artists, would visit schools to assist students in longitudinal projects seems unlikely. Schools find it difficult to find parents or community members willing to volunteer 30 minutes to speak about their occupations, let alone spending time mentoring students. Possible reasons for not bringing in mentors include a lack of money to pay for such services, and a provincial regulation that a certified teacher must be present during student instruction.

If MI theory were a method with precise steps to follow, these discrepancies would pose obvious problems. However, non-precise theory application offers elusive boundaries. Similar to assessing a student's progress in a course of study, I use my professional knowledge in assessing whether the teachers applied MI theory. In the end, this judgment is not a clear-cut decision but rather an informed statement based upon analysis of the collected data and the selected criteria. Any one of the components

discussed in this analysis might on its own not be characteristic of MI theory, but together, paint a picture that illustrates the theory in practice.

Gardner (1983/1993a) notes that the selection process for inclusion of an intelligence is an inexact science. "It must be admitted that the selection (or rejection) of a candidate intelligence is reminiscent more of an artistic judgment than of a scientific assessment" (p. 63). In the same way, it is impossible to determine scientifically whether an application is genuine.

In my analysis of Kerstin's and Mae's application, I note that their practice aligns closely with my own expectations of MI theory application, with examples of MI theory application in the literature, and with Gardner's suggested use of the theory. Acknowledged key components of MI theory application are present in the Cloudberry grade six and grade three classrooms. Based upon the evidence presented in the data, and my analysis of this data, I conclude that we have a genuine case of theory application.

PART II: Reflecting Upon the Data in Light of the Literature

The theory application at Cloudberry School is non-precise in nature. Kerstin and Mae do not follow a method that specifies materials to use or timelines to follow. Neither do they try to implement the theory "just like teachers at school X." In Kerstin's words: "I think we realize, okay, this is the theory, these are the eight intelligences, and we work with it" (II, p. 19). The theory makes sense to the teachers; it aligns with their values and beliefs. Kerstin and Mae view the theory as a useful tool in their daily practice. They are in the driver's seat; the theory assists them in their teaching practice.

In this part, I review the findings at Cloudberry School within the framework of theory application in the literature. Earlier in this thesis, I reviewed tensions in the theory

practice relationship, including the division between theory and practice, and the perceived dissonance between theorists and practitioners. From this discourse, I moved to specific theory application at a selected school. To provide context for the reader, I gave a detailed account of MI theory followed by a thick description of theory application at Cloudberry School. I then addressed the question: Did the teachers apply MI theory? I concluded that the data portray a genuine case of MI theory application. I now turn to an analysis of the Cloudberry implementation against the backdrop of the literature.

Origins and Use of Knowledge

The source of teachers' knowledge, and the use of this knowledge, is important for my study since it is central to the dynamics of the theory practice relationship. Various possibilities exist (the list contains a sampling of possibilities and is not intended to be conclusive):

1. Teachers' knowledge comes from their own experiences; one can only know what one has experienced. A scientific education knowledge base does not exist.
2. A scientific knowledge base results in a technical, or linear, application. Principles for practice specify precisely what teachers should do.
3. Teachers obtain knowledge from theory and test it in their classrooms. A hierarchy of knowledge is created; superior theorists bring ideas to subservient practitioners.
4. Knowledge originates both in school-based research and in university-based research, resulting in an amalgamation of theory and practice.
5. Knowledge, obtained from theory, requires teachers to take ownership of theory because theory application is highly dependent upon the context and comprises a messy, non-linear process.

In the next section, I reflect upon the Cloudberry data in light of the above-mentioned views from the literature.

A Question of Scientific Knowledge

According to Schön (1983), teaching belongs to the minor professions and as such, (a) does not have a scientific knowledge base, and (b) cannot apply theory since each situation necessarily differs from the next. Thus, teachers engage in endless "reflections-in-action," always finding new solutions to unique problems. Further, because of this lack of generalizations, teachers, according to Schön, cannot determine "the problems" ahead of time, thus reducing them to intuitive artistry. Because of the impossibility in determining generalized problems in the classroom setting, solutions in the form of science-based knowledge are futile.

Lack of scientific knowledge base. Let us tackle the knowledge base first. Schön (1983) notes that "teachers have gained relatively little from cognitive psychology" (p. 308). The assumption of this argument is that knowledge about teaching and learning (e.g., cooperative learning, classroom management, and learning styles), which has its base in science (e.g., cognitive psychology), is of minimal consequence to teachers. This argument is problematic in that it puts into question the purpose and value of educational research, as well as the dissemination of this research.

The notion that teaching is principally intuitive is a serious criticism on the profession. If this were true, it would be more effective to educate teachers by placing them primarily in school-based practicums, thereby ascertaining who has the ability to teach. The need for theory-based education would prove unnecessary since there would be no science-based knowledge to exploit. However, this approach is dubious even in

those occupations that *seem* innate. A musician's performance may seem intuitive to the uninitiated; yet, an examination of musical training reveals a substantive knowledge base and the systematic development of musical skills rather than the mysterious development of "artistry."

Reflection-in-action. Next, I turn to the second sticky point in Schön's (1983) argument: Practitioners cannot apply generalized knowledge to conditions in the swamp. What remains is reflection-in-action, a unique solution for every problem. This course of action appears highly ineffective. Although teaching is a complex and multi-faceted undertaking, there are commonalties among children. Classroom management, for example, has many variables, yet with common elements. Thus, understanding children's needs and their ways of "acting out" is useful when deciding upon appropriate interventions. While a certain response works with one child, modification of this response might be required for the next child, a type of reflection-in-action. A thoughtful teacher adjusts the response, based upon the knowledge of children and their behavior, to ensure a successful outcome, but it is not an entirely new response for every child. In this response, we find an example of theory application: applying generalized knowledge to a particular situation. Clearly, the use of theory can be productive when done thoughtfully and reflectively, but grievous when a rigid approach is adopted. However, Schön rejects theory application because it is necessarily technical in nature; thus, he "throws out the baby with the bath water." Possibly, Schön's dismissal of theory for the teaching profession is because of his narrow view of theory application.

Schön (1983) paints a bleak picture of the educational theory practice relationship. The teacher in the swamp is forever creating solutions based upon unique

situations, not able to draw upon findings in the literature, nor able to draw upon the knowledge of other professionals through collaborative practice, or on past personal experience for that matter, since these are also forms of generalized knowledge. Reflection-in-action, although a beneficial component of thoughtful practice, is *on its own* a solitary journey. Schön's model does not invite teachers into the theory practice relationship. On the contrary, his approach widens the gap between educational theorists and practitioners and perpetuates the division between theory and practice.

I reflect upon Schön's definitive views on the theory practice relationship. He sees a strong link between theory and practice in the so-called major professions but not so for the practitioners who toil in the swamp. However, the data collected for this study do not align with Schön's views. The Cloudberry cases demonstrate that teachers indeed use generalized knowledge on a daily basis. When Kerstin and Mae use MI theory, they apply generalized knowledge in their practice but their theory application is not technical in nature. They mediate MI theory according to their contexts. During the mediation process, they are mindful of the many components that comprise their complex environments. They consider the Alberta Program of Study, the needs of the children in their classrooms, and the various expectations of the stakeholders. One might say that they engage in reflection-in-action during theory application. The Cloudberry data do not support Schön's "either-or" approach, which implies that you *either* apply theory (technical rationality), *or* engage in reflection-in-action (intuitive practice). In contrast, Kerstin and Mae use *both* science-based knowledge and reflection-in-action.

Theory as opposed to practice. The notion of teaching as craftsmanship encourages an apprentice-type model. Using this approach, it soon becomes obvious who

can dance and who cannot (Comenius, cited in Cremin, 1967). The apprenticeship program builds upon copying the master as closely as possible until the apprentice reaches an expert level. Only then can the apprentice become interpretive and creative. Theory application is a non-issue in the development of practical skills.

Carr (1992) notes that

> education and teaching *are*, to be sure, matters of practice more than theory. In fact, I think that it is quite essential to grasp for a proper understanding of these issues that education as a practical activity is in a very real and crucial sense *opposed* to theory. (p. 242)

Carr argues that empirical research into the "largely 'soft' sciences of psychology, sociology, economics, management" (p. 246), which he regards as a "quasi-scientific enterprise," is inconsequential to teachers since it leads to technical solutions that prove ineffective in complex settings. Carr dismisses this type of theorizing since it fails to bring satisfactory results in the classroom. His argument offers a rigid view of theory application; in Carr's opinion, theory in the classroom requires a precise, Band-Aid type, course of action, which opposes the craft.

Similar to Schön, Carr is only willing to lend his support to over-arching theories that help teachers formulate values and beliefs. While having over-arching theories is indeed desirable, and while it is essential for every teacher to develop his or her own philosophy of teaching, this limited view on theory application discourages teachers from accessing useful information and widens the gap between theory and practice. Carr thus hinders a potentially reciprocal relationship between theorists and practitioners, and thereby robs both groups of collaborative endeavors.

Principles for Practice

Hirst (1966) argues that theory in the empirical sciences expresses the "conclusions of the pursuit of knowledge" (p. 40). However, he views educational theory in a different light:

> Where, however, a practical activity like education is concerned, the place of the theory is totally different. It is not the end product of the pursuit, but rather it is constructed to determine and guide the activity. The function of the theory is to determine precisely what shall and what shall not be done, say in education. (p. 40)

In Hirst's model, educational theory specifies a precise course of action that requires the subordination of practice to an outside body of knowledge. This knowledge becomes binding upon the practice. Interpretation of theory is irrelevant since it prescribes "what shall and what shall not be done."

I draw the reader's attention to the nature of this type of application: Precise theory application is prescriptive and rigid in nature. Understanding or interpreting fundamental principles are not as important as the meticulous application of a series of steps that lead to a desired end-state. Precise theory application can be likened to following a recipe, each step clearly delineated with prescribed activities. When baking a cake, it is crucial to follow the recipe as precisely as possible, assuming that the recipe is good. If the cake does not turn out, the baker returns to the recipe and tries to determine which step was not properly executed. While there may be some discrepancy in following a recipe, it is assumed that the practitioner will be as true as possible to the prescribed activities.

Hirst (1966) is in favor of this type of theory application in the classroom because it provides "rationally justified principles for educational practice" (p. 42). However, there is a fly in the ointment. Hirst admits that the journey between prescriptive theory and practice is unclear:

> Principles are one thing, practice is another, and nothing whatever has been said of the relationship between them. The link has in fact to be forged by the making of particular judgments in individual cases according to the relevant principles and the facts of the situations. If it is the job of educational theorists to formulate the principles, it is certainly vital for educational practice that teachers and others who both take and implement individual decisions fully understand the principles and their bases. But they must in addition be equipped to adequately distinguish the features of the particular situations in which judgments have to be made. Granted all this, there remains the formation of the judgments themselves in a process which, for all its importance, is still little understood either logically or psychologically. (pp. 56-57)

While Carr (1992) and Hirst (1966) both agree that theory offers technical solutions, they disagree on the use of theory in the classroom. Carr dismisses theory on grounds that it is ineffective in complex situations; Hirst promotes it but reveals that he does not understand the mediation process between theory and practice. Possibly, their views stem from a misunderstanding of the nature of theory application.

The Cloudberry data, in contrast, offer a more optimistic view on the use of theory in classrooms. The notion of precise – or technical – theory application is not evident in the data. First, the theory, or perhaps more correctly, Gardner's suggestions for

use of the theory, discourages a prescriptive approach. Second, Kerstin and Mae do not feel that the theory is binding upon their practice. I find no evidence that the teachers consider the theory restrictive. The teachers do not feel that they need to fulfil certain requirements in order to use the theory. At times, Kerstin mentions that she would like to include more music in her practice, but she does not appear overly concerned about this seeming shortfall. During my many hours of observation in the grade six room, I notice infrequent use of music. However, Kerstin is comfortable with this decision, knowing that the students receive music instruction from a music specialist, and thereby receive stimulus for the development of this intelligence. In this way, Kerstin exercises a measure of freedom in her application of MI theory. Instead of worrying about the technical aspects of theory application (have I included enough music), she sees the theory as a tool to be used for her own purposes. In my assessment in Part I of this chapter, I note that Kerstin's choices fit the parameters of genuine MI theory application.

Clearly, the Cloudberry data show that theory was used to inform practice, yet the application was not technical in nature. The data thus challenge Carr's and Hirst's views on theory application as necessarily technical in nature.

Hierarchy of Knowledge

Teachers' use of outside theory has been questioned since it implies the existence of "a superior form of knowledge to the knowledge developed by the practitioner working *in situ*" (Scott, 2000, p. 55). Similarly, Cochran-Smith and Lytle (1993) voice concerns about knowledge being principally generated in universities and then used in schools. Cochran-Smith and Lytle prefer an "inside-outside" approach, in which teachers

pose and explore relevant questions themselves. They caution against teachers applying research findings, an "outside-inside" approach.

Returning to the Cloudberry data, it is important to note that Kerstin and Mae did not initiate an inquiry on human intelligence. The idea of using intelligence research to inform teaching practice did not occur to them. When Kerstin encountered MI theory, she, and a group of colleagues from Cloudberry School, investigated the theory as a potential tool to enhance teaching and learning. Kerstin and Mae indicated that MI theory helped them understand how the brain works, and by extension, how children learn. In their opinion, Gardner's role was one of support for their instructional practice through added knowledge. The notion that theorists are superior to practitioners, or vice versa, was of no consequence to Kerstin and Mae. In fact, Gardner was not talked about much at all. Kerstin and Mae were more interested in what MI theory could do for them and their students than they were in Gardner.

Because the teachers commonly and overtly chose to use an outside theory, Kerstin and Mae did not feel that it was a top-down approach, or that a theorist meddled in their internal affairs. After the initial study trip to Jessie Wowk School, ensuing staff discussions yielded the decision to proceed with MI theory to enhance student learning. Principal Beth Engels, initiator of the implementation, believed in staff ownership and engaged the teachers in the decision-making process. According to Beth, the teachers indicated that they were comfortable with the initiative.

The Cloudberry data do not support Scott's (2000) and Cochran-Lytle's (1993) argument that using an outside theory places practitioners in a subservient role to theorists. Neither do the data confirm the notion that ideas are best generated in the

classroom. In the Cloudberry case, the idea of multiple intelligences came from Gardner. This is neither a good nor a bad thing; it is simply the state of affairs. To say that ideas for practice must necessarily originate in the classroom narrows the scope of teacher knowledge. Pursuing this approach hinders the access to university-based research and widens the gap between theory and practice.

Amalgamation of Theory and Practice

Norris (2000) argues that research is generated both in universities and in schools and that "the agenda of identifying elements of knowledge to serve as foundations for all other knowledge is rife with problems" (p. 176). Norris and Kvernbekk (1997) further suggest that teachers' full participation in the research community can be facilitated through a learning community wherein researchers and teachers collaboratively reflect upon important issues. "In this way, teachers retrieve some intellectual responsibility by being full participants in the production of the knowledge base" (p. 978). Following this line of reasoning, Schoenfeld (1999) and Lieberman (1992a) note that theory and practice are synergistic enterprises. This sentiment is echoed by Dewey (1928/1964) who suggests that theory gives "intellectual guidance to the practical operation of schools" (p. 171) and Gardner (1993b) who observes that practice is enriched by theory, just as theory is transformed by practice. We find in these views a move toward collaboration between theorists and practitioners.

Although Kerstin's and Mae's knowledge of MI theory may not directly transform MI theory, it is apparent that Gardner in his book, *Multiple Intelligences: The Theory in Practice* (1993b), draws heavily upon knowledge created through various collaborative projects involving teachers. The suggestions made in the book, which form a basis for his

views on theory application, are grounded in what occurred in schools where teachers applied MI theory.

On a more local level, Kerstin's and Mae's experiences have been shared with numerous Alberta teachers and administrators through workshops and professional development activities. In this way, Kerstin and Mae have contributed information about MI theory and theory application to the broader learning community. In addition, the exposition of the data in this dissertation can also be viewed as a direct contribution by teachers to the knowledge base in theory application. This contribution was made possible because Kerstin and Mae generously allowed me access into their classrooms and spent many hours with me reflecting upon important issues.

The Cloudberry data confirm notions of theory application as collaborative and synergistic enterprises, as posited by Norris (2000), Norris and Kvernbekk (1997), Schoenfeld (1999), Lieberman (1992a), Dewey (1928/1964) and Gardner (1993b). In the following section, I turn to the concept of taking ownership of theory.

Taking Ownership of Theory

In my interviews with Kerstin and Mae, and during classroom observations, the notion of MI theory as being oppressive or burdensome was not evident. The teachers were clearly in control of how to use the theory. They exercised freedom in interpreting and applying MI theory according to their understanding of the theory and the needs of their classrooms. If anything, Kerstin and Mae expressed an interest in talking to other practitioners who had also used MI theory in their classrooms. Both teachers viewed themselves as pioneers in the field because they had not found teachers in geographical proximity who had applied the theory in the Alberta context.

In my interview with principal Beth Engels, I found that she held a broad view on effective teaching practice. She noted that every teacher ought to become an "instructional strategies guru," and encouraged teachers to acquire knowledge that develops diverse teaching skills. Beth made a point of telling me that she did not want Cloudberry to be an MI school; she carefully steered away from creating the perception of a bandwagon approach, "here today, gone tomorrow." Beth indicated that she believed in teachers' developing an understanding of theory so that it becomes internalized knowledge rather than a top-down approach, which is easily dismissed with a change in administration.

In the Cloudberry implementation, the direct link to Gardner's suggestions for MI theory application was tenuous. The teachers had not read his account on "theory in practice" (Gardner, 1993b). From my document analysis of the school's teaching resources, Gardner was featured only in occasional articles. Most of the suggestions for implementation originated with translators of MI theory. In my interviews, I did not find evidence that the teachers considered Gardner's or the translators' guidelines to be recipes for practice. Instead, I would liken the Cloudberry mediation process to Ball's (as cited in Levin, 2001b) notion of policy making as bricolage:

> A matter of borrowing and copying bits and pieces of ideas from elsewhere, drawing upon and amending locally tried and tested approaches, cannibalising theories, research, trends and fashions and not infrequently flailing around for anything at all that looks as though it might work. Most policies are ramshackle, compromise, hit and miss affairs, that are reworked, tinkered with, nuanced and

> inflected through complex process of influence, text production, dissemination and, ultimately, re-creation in contexts of practice. (p. 21)

Although theory application and policy making are two different enterprises, the messiness of both processes is similar. Kerstin and Mae indicated that they use "whatever works," and although they did not cannibalize MI theory, they exercised considerable freedom in the implementation. The teachers thus created their own MI theory bricolage.

In Denzin and Lincoln's (1998) words: "The product of the *bricoleur's* labor is a bricolage, a complex, dense, reflexive, collagelike creation that represents the researcher's images, understandings, and interpretations of the world or phenomenon under analysis" (p. 4). Kerstin's and Mae's creation reflected their understandings and interpretations of MI theory.

The discussion in this section, *Taking Ownership of Theory*, suggests that the theory practice relationship may be more complex than is credited by those who argue that theory places teachers (a) in inferior positions, (b) as technicians, or (c) as testers of outside knowledge. It confirms views that uphold teachers as knowledge creators who engage in non-precise and messy theory application. Let us proceed with an exposition on the nature of theory application.

Part III: Alternative Ways of Viewing the Nature of Theory Application

In this section, I address two ideas that shed light upon the nature of theory application: (a) arts that bring theory to its application, and (b) theory application as construction. In the first scenario, the literature suggests the use of arts, or auxiliary hypotheses, in theory application but offers scant examples from practice. I submitted examples of arts that bring MI theory to its application in Part I of this chapter (p. 175),

and now expand the discussion to include the role of belief systems in classrooms. In the second scenario, I apply a paradigm shift model – theory application as construction of a new world – to the Cloudberry data.

Earlier, I discussed precise theory application and the lack of support for this line of reasoning in the Cloudberry data. I argued that theory "invites" a multiplicity of applications, and that this phenomenon is pivotal in understanding the nature of theory application. During non-precise theory application, the practitioner must understand the philosophical underpinnings of the theory and come to grips with how these align with existing values and beliefs. Once this challenge has been negotiated, the teacher makes decisions related to the use of theory depending upon his or her interpretation of the theory and the classroom in which the theory is applied. A prescribed course of action does not exist; therefore, the manifestations vary from one context to the next.

Arts That Bring Theory to its Application.

Similar to the notion of creating a bricolage, Schwab (1969) offers "the unsystematic, uneasy, pragmatic, and uncertain unions and connections which can be effected in an eclectic" (p. 10). Schwab notes that theory requires "arts that bring a theory to its application" (p. 12). Norris and Kvernbekk (1997) propose that teachers use "auxiliary hypothesis" (p. 978) to bring theory to its application. Common to these views is that theory application is a highly interpretive journey, filled with unknowns and heavily dependent upon the context.

Kerstin and Mae used various arts, and auxiliary hypotheses, to bring MI theory to its application in their classrooms. Based upon their understanding of the theory, they provided a rich learning environment, they valued students' strengths, they provided

diverse avenues for input and output, they gave students opportunities to engage in long- and short-term projects, and they attempted to teach for understanding. These arts aligned with Gardner's suggested use of MI theory, yet they were not prescribed by the theory. Rather, they were adopted by the teachers through common readings, professional dialogue, experimenting with ideas, and personal reflections.

Kerstin and Mae readily abandoned any ideas that "did not work." They evaluated their teaching practice and made decisions based upon responses from students, colleagues and various stakeholders. These responses came to them in various forms: students' enjoyment and engagement, students' quality of work, assessment results, classroom atmosphere, students' respect for peers, comments from parents and administrators, awards from school district and province, teachers' personal thoughts and feelings, and teachers' own reflections on their practice. Because Kerstin and Mae received overwhelmingly positive responses, they continued to pursue MI theory.

The teachers took ownership of the theory and applied it in ways that made sense to them. Their applications fell within "acceptable guidelines" of MI theory application; however, the applications were highly dependent upon their own background knowledge and the context in which they worked. Clearly, the teachers accessed science-based knowledge and applied it in ways not made clear by the theory. Accordingly, their applications were non-precise in nature, which resulted in varied manifestations. The arts used were individualistic and personal, yet – interestingly – aligned with recognized themes of MI theory applications from the international arena. In my analysis of the data, I found the many *similarities* between the Cloudberry application and other implementation efforts intriguing. It appeared that Kerstin and Mae, and numerous

teachers around the world, had adopted values and beliefs that caused them to apply the theory in similar ways. Let us examine the driving force behind this seemingly voluntary adherence to the "spirit of multiple intelligences" (Gardner, 1993b, p. 66).

Role of belief systems in classrooms. Sergiovanni (1991) uses the Key School, Indianapolis (see pp. 49 and 182 of this thesis) as an example of a school that made "a commitment to a set of ideals and beliefs or 'theory' about the nature of schooling" (p. 182). He notes: "Belief in a common approach to teaching and a common conception of human potential is the core element that bonds together the Key School faculty into a common cause" (p. 183). In the Key School, MI theory provides a philosophical foundation for school-wide decision making. The staff shares common values and beliefs about teaching and the students' abilities and structure their instructional practice accordingly.

Interestingly, Sergiovanni identifies a desire for values-oriented leadership in corporate America, as exemplified by credos and belief statements that assist companies in defining essential purposes and in guiding decision making. The notion of presenting "moral fiber" to the employees, as well as to the public, is considered critical to the well-being of an organization.

I reflect upon the purpose of education mission statements. The mission of the school district in which Cloudberry resides "is to ensure that all students achieve success in their individual programs of study." Further, "the mission is being accomplished through exemplary staff performance, program diversity, measured student achievement of outcomes and decentralized decision making." Clearly, these are good – motherhood and apple pie kind of – statements, but with notably ambiguous implementation

strategies. The Cloudberry staff believed that MI theory provided answers to the district's desire for student success and the staff's desire to provide good education. However, in embracing MI theory, they gained not only a teaching approach, but also a belief system.

Creating a belief system. Kerstin views the study trip to Jessie Wowk School as a crystallizing experience. "We were so impressed with what we saw there. That was our buy-in" (II, pp. 8-9). She expands, "Just walking in the school, the quality of student work and student display was just incredible. There was such excellence in everything you saw" (I, pp. 1-2). The study trip created in Kerstin and the other staff members a desire to create a similar environment at Cloudberry. Accordingly, they engaged in professional development, they used MI language, the posted artifacts around the school, they viewed the students as having multiple intelligences (everyone is smart), and they planned instructional practice around MI theory. Gradually, MI culture emerged at the school, which offered students, staff and parents a common set of values and beliefs about teaching and learning.

Another early feature of the Cloudberry implementation was the endorsement of diverse applications. Kerstin's and Mae's different strengths, background experiences and classroom contexts were not compromised by adopting common values and beliefs within the MI framework. Instead of finding the theory restrictive, the teachers found that it encouraged individual creativity. Because Kerstin and Mae recognized that all intelligences needed to be developed, they attempted instructional practices that they normally would have avoided. For example, Kerstin recognized that alternative forms of reporting were acceptable (Kerstin was a "traditional" learner who thrived on paper-and-pencil activities). Mae, on the other hand, realized that some students need quiet,

reflective work time (Mae, as a learner, preferred busy, activity-filled classrooms with lots of physical activity). The MI journey brought Kerstin and Mae into territory that expanded both teachers' understanding of their own strengths and weaknesses as well as the learning needs of their students.

The theory appeared good to the stakeholders. It offered hope for all students. It was humanistic and inclusive. Parents and students liked the notion that all children are intelligent but in different ways. Teachers enjoyed looking for strengths and building upon these strengths. As the teachers proceeded on the MI journey, they found that their students responded positively and that the achievement results were noteworthy. The common values and beliefs adopted by the stakeholders contributed positively to the goal of ensuring success in the students' individual programs of study.

Theory Application as Construction

The initiative at Cloudberry can be viewed as theory application as construction. When the teachers mediated between MI theory and the object of the theory – the children and their intelligence – they constructed reality in accordance with their values and beliefs. The teachers adopted the theory as truth and created an environment that aligned with what they believed to be the tenets of the theory. This construction of reality was highly interpretive and personal because the theory did not tell them specifically what to do.

I continue to probe for further explanations as to what caused Kerstin and Mae, and thousands of other teachers around the world, to adopt these values and beliefs. Kuhn's (1970) work provides plausible answers.

Kuhn (1970) argues that the rise of a new theory is frequently caused by dissatisfaction with an existing model: "An existing paradigm has ceased to function adequately" (p. 92). In the case of MI theory, several elements contributed to a growing discontent with the existing paradigm: (a) Gardner was dissatisfied with the traditional model of intelligence because it constrained human ability to a narrow band of intelligences, and (b) a crisis in education existed, and continues to exist, to which the traditional view of intelligence has made significant contributions.

The crisis in education that I refer to (and I add, one of many), is one pertaining to educating a diverse student population, and ensuring success for each individual student in his or her program of study. As has become increasingly apparent, these goals are difficult to reconcile within the framework of a traditional view of intelligence. In the traditional model, some students have academic aptitude while others do not. Some students fail courses; others drop out of school. IQ tests measure how well students will do in school. However, today's educational stakeholders no longer accept failure as an acceptable outcome. The need for solutions weighs heavily upon the system, yet the solutions are sparse in forthcoming.

When Gardner posited a new theory of intelligence, educators were attracted to it because it offered *a new way* of looking at students, with promising solutions to existing problems. This new way caused people to look for students' strengths and ways to build upon these strengths. "Everyone is smart but in different ways" clearly went against the grain of the existing model. Something in MI theory appealed to educators.

Kuhn (1970) observes that there are "arguments, rarely made entirely explicit, that appeal to the individual's sense of the appropriate or aesthetic – the new theory is said to

be 'neater,' 'more suitable,' or 'simpler' than the old" (p. 155). This statement implies that a new theory does not need to be proven true to be accepted. Levin (2001a) notes, in the political arena:

> What people believe to be true is much more important than what may actually be true. Beliefs drive political action and voting intentions much more than do facts. Witness the strength and depth of public support for various measures that clearly fly in the face of strong evidence. (p. 8)

When Gardner's theory appeared in 1983, it was rejected by psychologists but embraced by educators. These educators included researchers, teachers, administrators, school districts, and government departments of education. In diverse ways, these people and agencies applied the theory to whatever they happened to be doing, which resulted in numerous articles, books, and teaching resources, MI theory applications in classrooms, a new MI language related to teaching and learning, and assorted school district and government policies.

Evidence indicates that since 1983, MI theory has steadily gained momentum among commercial enterprises. ASCD offers MI print and audio-visual resources in ever-increasing quantities and has included numerous MI sessions in their conferences. Other establishments have similarly realized that MI is a "hot topic" and offer teaching resources and conferences exclusively devoted to MI theory. Online MI resources proliferate with new categories cropping up, including brain-based learning and differentiated learning, some of which draw upon MI theory. Various assessment materials based upon the theory are available, as are MI student inventories. While this attention does not prove the theory either true or false, it does indicate a paradigm shift.

Kuhn observes that after Copernicus, Galileo and Dalton, the world did not change but people's perception of the world changed. Kuhn refers to these times of change as scientific revolutions. Kuhn (1970) notes:

> During revolution scientists see new and different things when looking with familiar instruments in places they have looked before. It is rather as if the professional community had been suddenly transported to another planet where familiar objects are seen in a different light and are joined by unfamiliar ones as well. (p. 111)

He notes further:

> Paradigm changes do cause scientists to see the world of their research-engagement differently. In so far as their only recourse to that world is through what they see and do, we may want to say that after a revolution scientists are responding to a different world. (p. 111)

Comparing pre- and post-Copernican times, the world *per se* did not change but people's understanding of the world changed, thus causing them to draw different conclusions. In the education setting, MI theory did not change the students but it changed the way in which educators viewed students. The paradigm shift that took place at Cloudberry caused the teachers to draw new conclusions about teaching and learning, and to engage in different teaching behaviors. Kerstin and Mae adopted a theory and thus constructed a new reality based upon their interpretations of the theory.

In the theory application as construction model, the beliefs about human intelligence propel teachers in vastly different contexts, and with culturally diverse backgrounds, to adopt similar instructional approaches. Various teachers in countries

around the world have, with apparent ease, accepted that all students are intelligent but in different ways. One might conclude that the theory has a universal appeal that transcends geographical and cultural boundaries. While the constraints of this study do not permit me to pursue this thought in greater detail, I believe that teachers' values and beliefs warrant further study.

In the next section, I propose additional areas that might benefit from increased attention. I also include possibilities for improvement of theory practice relationships.

Part IV: Implications

I have selected for further consideration the following areas:

- ownership of theory,
- role of theory in pre-service teacher education,
- communication between theorists and practitioners,
- collaborative projects between university-based researchers and school-based practitioners,
- access to theory, and
- use of theory.

Ownership of theory. The Cloudberry data present two teachers who take control of theory. Kerstin says, "I think we realize, okay, this is the theory, these are the eight intelligences, and we work with it" (II, p. 19). While Kerstin and Mae make no claims to having generated the theory, they clearly determine how to use it at Cloudberry School. The teachers use the theory as a tool to reach elementary students with vastly different abilities. Kerstin and Mae do not follow a prescribed course of action. They use the theory for their own purposes, in the Alberta context.

Similarly, educators across the world use MI theory for their own purposes, be they education improvement initiatives, production of teaching resources, or policy making. The ownership of theory resides with the user. The theory creator can offer suggestions for use, but cannot expect that these will be followed. Theory in practice belongs to the practitioner.

I argue that theory is always at the peril of the user and that there can be no precise theory application. Any theory is subject to the desires and purposes of the user, and to presume that an outside person can dictate its use in a particular setting is naïve. Background experiences and contextual differences result in diverse applications of any given theory.

Role of theory in pre-service teacher education. Herein lies a highly problematic and contentious issue, which fosters an early rift in the theory practice relationship. In meeting with educators who desire professional development, I frequently encounter reticence toward theory. I am told, "Make sure you give us practical materials. Stay away from theory." As a compromise, I have found that *some* theory is palatable as long as user-friendly materials follow.

In my own undergraduate university experience, I was at times frustrated by the seeming irrelevance of some of the theories presented. These theories seemed to have little or no connection to the "real world" of teaching. In lecture halls filled with 100-200 students, we heard of Piaget and Bruner but did not make the link between their theories and the work that awaited us. We memorized facts and passed tests; we jumped through hoops. Because ingesting voluminous materials seemed more important than understanding the theories, we promptly forgot most of the content of these fact-filled

courses. In retrospect, fewer facts and an explicit link between theory and practice might have facilitated more sense making for the students.

I wish to add that there were courses in which the link to theory was made explicit, notably so in my music education courses. In these courses, we studied theory infused in practice. We learned of Orff and holistic music education, and Kodály and the development of singing skills. These theories provided a philosophical framework for developing an understanding of how the young child accesses music, and how music teachers can facilitate success for all students. I subsequently used these theories successfully in my own teaching practice. Although the Orff *approach* offers more freedom than the Kodály *method* (note the differences in names), I felt that I was the owner of both theories. Consequently, I made decisions about how to implement these theories in my own context.

Possibilities for improvement in pre-service teacher education:

1. Review how to make the theory practice link more explicit. Students might explore how *this* particular theory applies to the swampy nature of *that* particular classroom.
2. Examine the *nature* of theory application, particularly the mediation process between the abstract and the concrete, and its messy, non-linear path.

Communication between theorists and practitioners. In a recent change and reform initiative undertaken by the school district in which I work, the importance of professional dialogue, of *talking* about teaching and learning, has been repeatedly stressed. At first blush, this seems like an obvious statement, however, a closer examination reveals that teachers do not talk much about teaching and learning in daily practice. In the classroom, teachers are alone with the students; at recess, staff rooms

abound with "release talk" – such and such a student misbehaved at recess; there is a problem with students in the bathroom; a parent was obnoxious on the phone, and so on. An important component of the change and reform initiative mentioned above has been to structure time for teachers to talk about instructional practice. This might take the form of collaboratively looking at student work, developing common assessment instruments, or implementing a school-wide instructional focus.

Similarly, we cannot assume that theorists and practitioners communicate with each other. I propose that any steps toward increased communication, however small, could lead to valuable outcomes for everyone involved. Possible avenues for increased communication might take the form of study groups or information sessions, in which university-based researchers and school-based practitioners share insights and engage in professional dialogue. Of importance is that this kind of communication should not be devoted strictly to graduate study programs, or education conferences, but that opportunity should be given for these types of activities to take place on "school turf."

Collaborative projects between university-based researchers and school-based practitioners. At times, I am asked by teachers why there are not more collaborative endeavors between "the university" and the schools. Practitioners speak to me of the seeming distance between the "ivory tower" and teachers. When I visited Harvard University for the Project Zero Classroom Institute 2001, David Perkins addressed the roles of "The Three Visionaries" in collaborative projects (personal communication, August 3, 2001). In this plenary address, Perkins spoke of the three visionaries as: (a) the conceptual visionary (creates idea), (b) the practical visionary (puts

idea into practice), and (c) the political visionary (funds/administers the project). According to Perkins, all three are required for successful projects.

A step toward possible improvement in this area might be to reflect upon the components required for collaborative research projects to proliferate. I suspect that the funding issue is a common obstacle to collaborative endeavors. Any system clearly experiences constraints in a chronically underfunded environment. However, in spite of obstacles, numerous projects move ahead. A useful exercise might be to explore the requisite conditions and the driving force behind these projects. The insights gained from such a review might be useful to the advancement of collaborative projects between university-based researchers and school-based practitioners.

Access to theory. The dissemination of research findings is a perennial problem. Although research is published in numerous journals, the danger of its not getting to the practitioners is ever present. Teachers typically do not read research journals unless they are engaged in graduate study or are part of a study group. The most common means of access for teachers are through professional development activities such as inservices, workshops and conferences. However, I see some signs of improvement in this area.

There is in the Alberta context a seemingly increased appetite for accessing research. For example, the school district in which I work has taken various steps to facilitate research access through: (a) the purchase of a user-friendly Internet research service that can be accessed by teachers, (b) the establishment of a research group with the goal of disseminating pertinent research to schools, (c) the attempt to base professional development activities on sound research, (d) the provision of financial

incentives to undertake gradate studies, and (e) the provision of financial support to attend conferences in Canada and abroad.

In my role of consultant, I frequently act as a liaison between theory and practice. A suggestion for strengthening the theory practice relationship might be increased Internet access to university-based research. Teachers might find it interesting to learn about recently completed studies at local universities, or for that matter, at any university. A possible area for improvement might be to make available a user-friendly website from which teachers can access information about current research.

Use of theory. I view the use of theory as a way to harness the collective intelligence. The notion of accessing knowledge that can be of use in daily practice is clearly desirable. However, teachers ought to have the freedom to choose which theories to implement in their classrooms. While I have presented MI theory as a good candidate theory for inclusion in teachers' instructional repertoires, I hesitate to suggest that teachers *should* use the theory. A more useful strategy would be to encourage teachers, and future teachers, to develop and maintain a professional curiosity that would lead them to explore what is happening in the field.

Part V: Conclusions

We use theories on a daily basis. Many theories originate from childhood experiences. Other theories appear in the course of educational pursuits or as part of our work. In this study, I examine the nature of theory application, specifically the process that occurs when teachers take an outside theory and apply it in a particular context.

I have included various elements of the mediation process. These comprise part of the highly complex and multi-faceted journey that teachers undertake when they apply

theory in their classrooms. Perhaps the most intriguing insight is the notion of theory as a belief system. When I spoke with Kerstin and Mae, they consistently and wholeheartedly embraced MI theory as truth. They were convinced that the human mind encompasses eight intelligences. They acted in accordance with this belief and expected the world to respond in harmony with MI theory.

Because of MI theory, Kerstin and Mae viewed human beings differently and structured a new world à la MI. In this new world, they enjoyed looking for strengths rather than weaknesses. They appreciated the variety of learning experiences that it afforded the students. They were proud of the students' achievement results.

The new world created by Kerstin and Mae was a product of the teachers' beliefs, interpretations, judgments and teaching expertise. When I compare and contrast their constructions with other MI applications, I am struck by similarities rather than differences. Notions that "all children are smart but in different ways" and "all intelligences need to be developed" seem to bring cohesion to vastly different contexts. In the descriptions of MI theory in Turkey, Bangladesh, Australia, Sweden, the United States, and Canada, there is remarkable unity in implementation. I speculate that the belief system adopted by the teachers has caused them to interpret and apply the theory in similar ways.

My study contributes to the literature by showing that (a) theory application involves a complex and messy mediation process, (b) various arts bring a theory to its application, and (c) belief systems are part of theory application. I posed the question: How does mediation of MI theory inform the nature of theory application? From the

study involved in this thesis, I gained information that assisted me in drawing conclusions about an area that is still shrouded in mystery.

Limitations

A case study has obvious limitations. I chose to look closely at two teachers and their experiences with MI theory because I believed that the data obtained through this research design would be more interesting than if I had chosen another approach. I am satisfied with my decision.

In research, numerous choices are required in order to move the study forward. I decided to highlight certain elements and ignore others. My personal bias, and what I think is important, has clearly colored this study. I felt that this was my prerogative as investigator.

I chose to use a theory that may or may not be proven true or false in my lifetime. For the purposes of this study, I decided that this was not of concern. The theory has served the purpose, which is to illuminate the nature of theory application. Clearly, other theories could have been used. However, I suspect that my choice of theory contributes to my continued interest in the theory practice relationship.

Personal Reflections

Initially, I did not expect to look so closely at theory application. My purpose and passion were to investigate how MI theory "behaves" in the classroom. However, the journey took me into unexpected territory.

The notion that research needs to be socially responsible struck a chord. In undertaking this study, I did not set out to find truth but rather to satisfy a curiosity about the changes that a given theory might cause in classrooms. Looking back, it was the

desire to see whether children can have a good schooling experience, given a nurturing environment, which provided the passion to pursue the research.

I have primarily had good experiences in school. My teachers were generally excellent and I enjoyed the challenges set before me. Because of these positive experiences, I naïvely believed that most students had similar experiences. Although I heard people complain about bad times in school, their statements did not sink in. I did not comprehend what they were saying until, as an adult, I read a book entitled *Bakläxor* (Persson, 1989). Loosely translated from Swedish, the title means "homework that must be redone," a common term in former Swedish schooling. Students who got *bakläxa* – an unpleasant term to any pupil – had to redo their work.

The book comprises seventeen stories, by as many authors, about experiences in school. I found the stories shocking, not because they revealed any outlandish or criminal events, but because their descriptions of situations that I well recognized portrayed stories that were vastly different from mine (Sweden in the '60s and '70s was a largely homogenous country with strong, state-administered schools). Where I experienced success, other students experienced failure. Where I found happiness, they found frustration. I finally *understood* that for many children, school is a very unhappy place to be because of numerous daily disappointments. I set out to find solutions to this dilemma through graduate studies and my work as consultant in the Instructional Processes area.

Although any one theory cannot be *the* answer to solving the problem of educating a diverse student population, it can offer part of the solution to complex educational dilemmas. Whether MI theory is used in the classroom is of lesser importance than that teachers gain access to valuable knowledge that can assist them in

practice. During my time as teacher, I frequently advised my students that our classroom was a laboratory in which we tested ideas. Like Kerstin and Mae, I saw theories as possible solutions to the daily challenges of educating a diverse student population. I therefore view strengthening the theory practice relationship as highly desirable because it holds promise for enhanced theory *and* practice, and by extension, success for a greater number of students.

On the next page, I include a poem that portrays some of my thoughts about social responsibility.

Valuing Students

Remembrance Day
November 11, 2001 … following two months of sense-making

I am compelled to write another poem, a poem about a kinder, gentler world.

I started thinking deeply of my discussions with Mae,
Our talks about valuing students,
Our quest to understand her students.

I find the valuing and honoring of students' strengths to be of compelling interest.
It touches deeply held beliefs about democracy and fairness.

It reminds me of a discussion in South Africa … a late night at a hostel, a group of travelers from different countries – India, France, Argentina, South Africa, Sweden, Canada. A fierce debate about the injustices between black and white, rich and poor, people walking hungry on dusty roads and others well fed, in comfort. A physician from France who spent three months in Copenhagen, exasperated with my insistent arguments, blurted out, "Oh Elisabeth, you are so *Scandinavian*. You want everything to be fair." It took me by surprise. Of course, I want everything to be fair. That's so … obvious!

What I find when I analyze the data is a kinder, gentler classroom.

A classroom where everyone is smart,
Where choices abound,
Where students are accepted
… as valuable.

In a world of chaos and destruction, of terrorism and uncertainty,

Are we really that interested in stratifying students into
HIGHER or lower,
SMARTER or dumber,
SUPERIOR or inferior
… s p e c i m e n s.

Is that what's it all about?

Or are there alternatives–
a route toward peaceful living,
valuing human beings (our students) for who they are.

Each with the potential to make a valuable contribution to society.

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Appendices

Appendix A

Interview 1

Introductory questions

1. What caused you to become interested in MI theory?

2. What has sustained your interest in MI theory?

3. Tell me about an experience (an "aha" experience) that revealed to you the benefit of using MI theory in your classroom.

Teaching philosophy

4. What are your beliefs and values about learning?

5. What are your beliefs and values about teaching?

Interpretation of MI theory

6. What information have you gained about MI theory?

   Possible probe areas:
   - knowledge of theory
   - implementation efforts
   - other teachers' experiences
   - books, articles, videos, conferences, workshops, inservices, administrators, colleagues

7. From which source have you gained most of your knowledge of MI theory?

8. What do you think is the most important feature of MI theory?

9. Can you give an example of how you have interpreted MI theory to fit your particular context?

   Possible contextual considerations:
   - class size
   - student abilities
   - parental expectations
   - school budget document
   - Alberta Program of Study
   - school district expectations

10. Have you "adjusted" MI theory to accommodate the students in your classroom?

Implementation of MI theory

11. How do you plan for instruction using MI theory?

    Possible probe areas:
    - resources
    - learning activities
    - focusing on eight intelligences
    - teaching *to* versus teaching *through* multiple intelligences

12. What is the level and frequency of MI implementation in your classroom (e.g., in all subject areas or in selected subjects; on a daily or weekly basis)?

13. Can you describe how you use MI theory in your classroom?

    Possible probe areas:
    - how do you address a particular student's needs using MI theory
    - how do you teach a challenging concept using MI theory
    - use of instructional strategies (e.g., centers, cooperative learning)
    - integration of subject areas (e.g., arts integration in "core" subjects)
    - use of community resources (e.g., institutions that offer educational programs, parents or community members with specialized skills)

14. Can you give some examples of how MI theory is making a difference in your classroom?

    Possible probe areas:
    - student behavior
    - academic achievement results
    - student motivation (e.g., engagement, time on task)
    - other perceived effects on students (e.g., social, emotional)

Challenges and Management Strategies

15. What barriers, problems, and dilemmas have you encountered during the planning and implementation of MI theory?

    Possible probe areas:
    - students/parents/district staff
    - early implementation efforts
    - class size
    - lack of resources
    - time required to create MI activities

- difficulty in addressing eight intelligences

16. What management and coping strategies did you employ to cope with these barriers/problems/dilemmas?

    Possible probe areas:
    - observation of students
    - support by administration
    - collaboration with colleagues
    - communication with parents
    - assistance from the district level
    - professional development (e.g., readings, conferences, inservices)

Wrap-up

17. Have I missed anything that you would like to share with me about your experience with MI theory?

Appendix B

Interviews 2 & 3

1. Choose a few students in your room this year. Describe their intelligences.
2. How did you determine their intelligences?
3. Has your opinion of their intelligences changed over the course of the year?
4. Are there any students whose intelligences you do not know?
5. Are there some students whose intelligences lie in *many* areas? If yes, can you describe a student who is smart in many areas, e.g. which smarts are strong, which are weak?
6. Are there some students whose intelligences lie in *few* areas? If yes, can you describe a student who is smart in few areas, e.g. which smarts are strong, which are weak?
7. Is there such a thing as a typical student? How would you describe the intelligences of a typical student?
8. Tell me about some students (at least two different ones) who applied more effort in a weak area due to recognition of an intelligence in a strong area.
9. Pick a student from this year's class where you think MI has been particularly successful. What did you do? How did the student respond?
10. Do you try to find out more about your students' intelligences as the year progresses? If yes, how do you do this?
11. Do you look for growth in students' intelligences? If yes, how do you monitor this?
12. Do you believe that intelligences can increase? If yes, describe what you have noticed ("evidence" upon which you base this belief).
13. How do your own intelligences influence your teaching?
14. Could we review some planning documents, e.g. weekly plans and unit plans, so that I can see how you incorporate the different intelligences in your instruction.
15. Mae: Describe to me the "extras" that the students chose to do as part of their book project (ties in with providing choices in how to demonstrate learning).

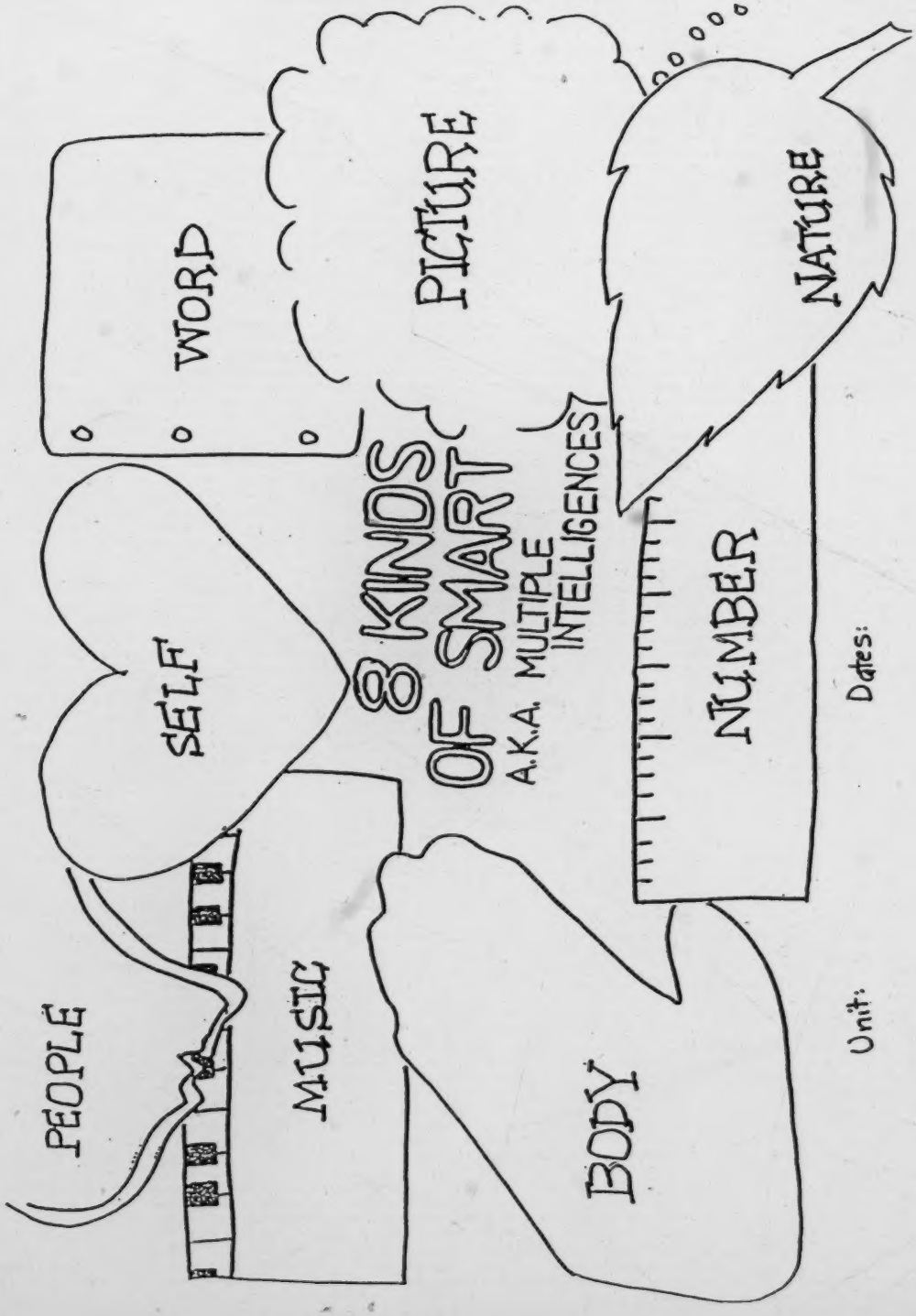
16. Mae: Do you assess the "extras"? If yes, how?

17. Kerstin: Describe to me the projects that the students do as part of the Greek unit.

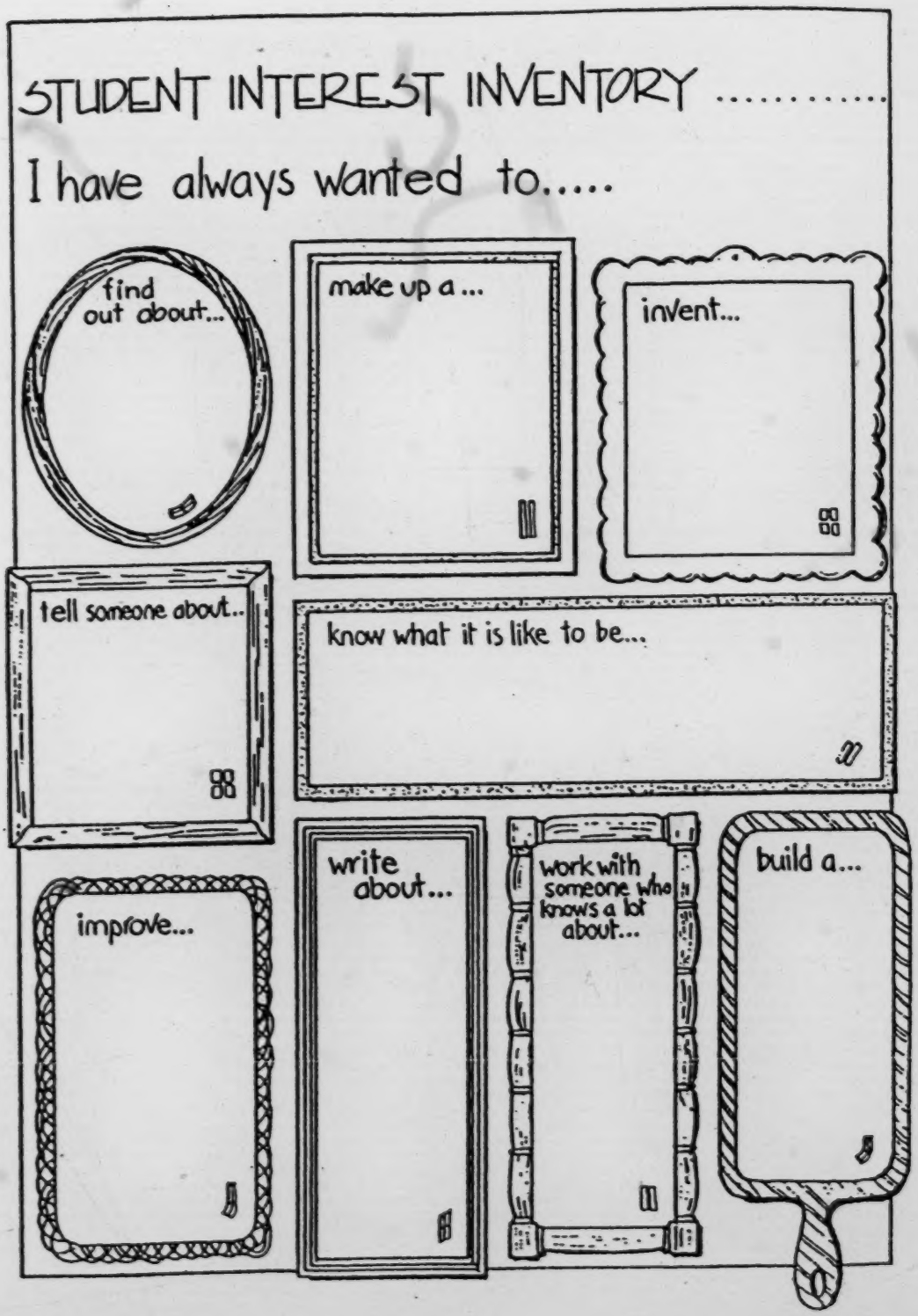
18. Kerstin: Do you assess the projects. If yes, how?

Appendix C

MI Planning Sheet



Appendix D


STUDENT INTEREST INVENTORY .....
I have always wanted to.....
find out about...
make up a ...
invent...
tell someone about..
know what it is like to be...
write about...
work with someone who knows a lot about...
build a...
improve...

Appendix E

Figure 3.2. Checklist for Assessing Students' Multiple Intelligences

Name of Student: _____

Check items that apply:

Linguistic Intelligence

- _____ writes better than average for age
- _____ spins tall tales or tells jokes and stories
- _____ has a good memory for names, places, dates, or trivia
- _____ enjoys word games
- _____ enjoys reading books
- _____ spells words accurately (or if preschool, does developmental spelling that is advanced for age)
- _____ appreciates nonsense rhymes, puns, tongue twisters
- _____ enjoys listening to the spoken word (stories, commentary on the radio, talking books)
- _____ has a good vocabulary for age
- _____ communicates to others in a highly verbal way

Other Linguistic Abilities:

Logical-Mathematical Intelligence

- _____ asks a lot of questions about how things work
- _____ enjoys working or playing with numbers
- _____ enjoys math class (or if preschool, enjoys counting and doing other things with numbers)
- _____ finds math and computer games interesting (or if no exposure to computers, enjoys other math or science games)
- _____ enjoys playing chess, checkers, or other strategy games
- _____ enjoys working on logic puzzles or brainteasers (or if preschool, enjoys hearing logical nonsense)
- _____ enjoys putting things in categories, hierarchies, or other logical patterns
- _____ likes to do experiments in science class or in free play
- _____ shows interest in science-related subjects
- _____ does well on Piagetian-type assessments of logical thinking

Other Logical-Mathematical Abilities:

Source: Armstrong, T. (2000). *Multiple Intelligences in the classroom.* Alexandria, VA: ASCD.

Spatial Intelligence

- _____ reports clear visual images
- _____ reads maps, charts, and diagrams more easily than text (or if preschool, enjoys looking at more than text)
- _____ daydreams a lot
- _____ enjoys art activities
- _____ good at drawings
- _____ likes to view movies, slides, or other visual presentations
- _____ enjoys doing puzzles, mazes, or similar visual activities
- _____ builds interesting three-dimensional constructions (e.g., LEGO buildings)
- _____ gets more out of pictures than words while reading
- _____ doodles on workbooks, worksheets, or other materials

Other Spatial Abilities:

Bodily-Kinesthetic Intelligence

- _____ excels in one or more sports (or if preschool, shows physical prowess advanced for age)
- _____ moves, twitches, taps, or fidgets while seated for a long time in one spot
- _____ cleverly mimics other people's gestures or mannerisms
- _____ loves to take things apart and put them back together again
- _____ puts his/her hands all over something he/she's just seen
- _____ enjoys running, jumping, wrestling, or similar activities (or if older, will show these interests in a more "restrained" way-e.g., running to class, jumping over a chair)
- _____ shows skill in a craft (e.g., woodworking, sewing, mechanics) or good fine-motor coordination in other ways
- _____ has a dramatic way of expressing herself/himself
- _____ reports different physical sensations while thinking or working
- _____ enjoys working with clay or other tactile experiences (e.g., fingerpainting)

Other Bodily-Kinesthetic Abilities:

Source: Armstrong, T. (2000). *Multiple Intelligences in the classroom*. Alexandria, VA: ASCD.

Musical Intelligence

- _____ tells you when music sounds off-key or disturbing in some other way
- _____ remembers melodies of songs
- _____ has a good singing voice
- _____ plays a musical instrument or sings in a choir or other group (or if preschool, enjoys playing percussion instruments and/or singing in a group)
- _____ has a rhythmic way of speaking and/or moving
- _____ unconsciously hums to himself/herself
- _____ taps rhythmically on the table or desk as he/she works
- _____ sensitive to environmental noises (e.g., rain on the roof)
- _____ responds favorably when a piece of music is put on
- _____ sings songs that he/she has learned outside of the classroom

Other Musical Abilities:

Interpersonal Intelligence

- _____ enjoys socializing with peers
- _____ seems to be a natural leader
- _____ gives advice to friends who have problems
- _____ seems to be street-smart
- _____ belongs to clubs, committees, organizations, or informal peer groups
- _____ enjoys informally teaching other kids
- _____ likes to play games with other kids
- _____ has two or more close friends
- _____ has a good sense of empathy or concern for others
- _____ others seek out his/her company

Other Interpersonal Abilities:

Source: Armstrong, T. (2000). *Multiple Intelligences in the classroom*. Alexandria, VA: ASCD.

Intrapersonal Intelligence

- _____ displays a sense of independence or a strong will
- _____ has a realistic sense of his/her abilities and weaknesses
- _____ does well when left alone to play or study
- _____ marches to the beat of a different drummer in his/her style of living and learning
- _____ has an interest or hobby that he/she doesn't talk much about
- _____ has a good sense of self-direction
- _____ prefers working alone to working with others
- _____ accurately expresses how he/she is feeling
- _____ is able to learn from his/her failures and successes in life
- _____ has good self-esteem

Other Intrapersonal Abilities:

Naturalist Intelligence

- _____ talks a lot about favorite pets, or preferred spots in nature, during class sharing
- _____ likes field trips in nature, to the zoo, or to a natural history museum
- _____ shows sensitivity to natural formations (e.g., while walking outside with the class, will notice mountains, clouds; or if in an urban environment, may show this ability in sensitivity to popular culture "formations" such as sneakers or automobile styles)
- _____ likes to water and tend to the plants in the classroom
- _____ likes to hang around the gerbil cage, the aquarium, or the terrarium in class
- _____ gets excited when studying about ecology, nature, plants, or animals
- _____ speaks out in class for the rights of animals, or the preservation of planet earth
- _____ enjoys doing nature projects, such as bird watching, butterfly or insect collections, tree study, or raising animals
- _____ brings to school bugs, flowers, leaves, or other natural things to share with classmates or teachers
- _____ does well in topics at school that involve living systems (e.g., biological topics in science, environmental issues in social studies)

Other Naturalist Abilities:

Source: Armstrong, T. (2000). *Multiple Intelligences in the classroom*. Alexandria, VA: ASCD.

Appendix F

Data Coding Guide

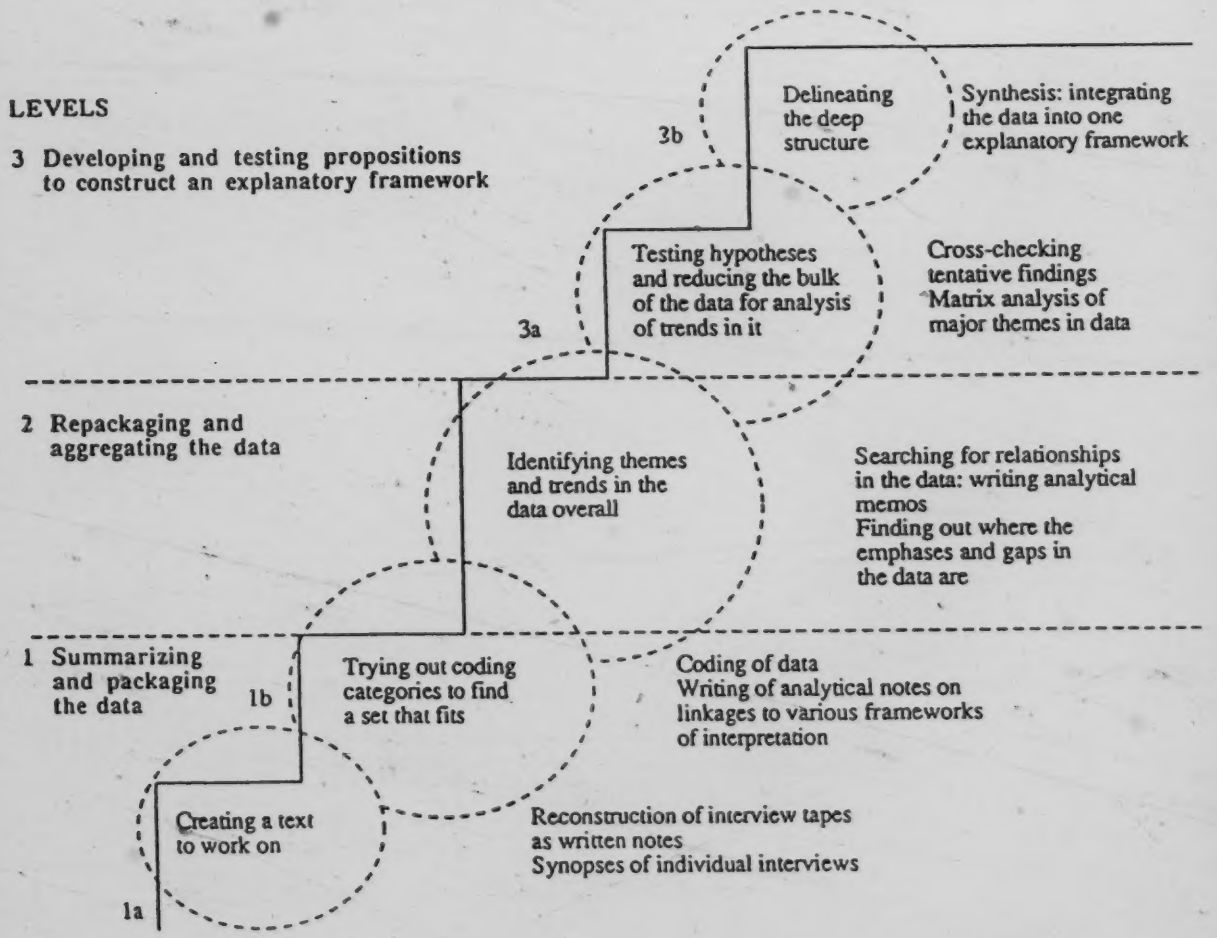
Adapted from Project Zero *Good Work Project* Categories
Harvard University

1. Independent Variables (description of subject, setting)
2. Values and Beliefs (teaching and learning; values and beliefs; "the big picture")
3. Goals (meeting the needs of all students; helping students to be successful)
4. Obstacles (lack of knowledge of MI, time pressure; own weaknesses)
5. Strategies (domain mastering and domain expanding, e.g. learning about MI; professional development activities; emergence of school-wide sharing sessions; and collaboration between teachers)
6. Obstacles into Opportunities (sharing MI implementation with teachers from other schools)
7. Supports (knowledge gained from Jessie Wowk (institution); supportive principals (persons) who were visionary and acted as educational leaders of the school; readings)
8. Transforming Moments (specific "aha experiences" in the classroom; "This works!")
9. Classroom Implementation (a continuous, circular process)
    - Planning
    - Implementation
    - Reflection
10. Formative Influences (persons, groups, or activities that exerted the most influence on their development, with special reference to (a) choice of careers and (b) decision to use MI theory

Appendix G

Ladder of Analytical Abstraction (Carney, 1990)

Figure 5.1
The Ladder of Analytical Abstraction (Carney, 1990)


LEVELS
3 Developing and testing propositions to construct an explanatory framework
3b
Delineating the deep structure
Synthesis: integrating the data into one explanatory framework
Testing hypotheses and reducing the bulk of the data for analysis of trends in it
3a
Cross-checking tentative findings
Matrix analysis of major themes in data
2 Repackaging and aggregating the data
Identifying themes and trends in the data overall
Searching for relationships in the data: writing analytical memos
Finding out where the emphases and gaps in the data are
1 Summarizing and packaging the data
1b
Trying out coding categories to find a set that fits
Coding of data
Writing of analytical notes on linkages to various frameworks of interpretation
Creating a text to work on
1a
Reconstruction of interview tapes as written notes
Synopses of individual interviews

Source: Miles and Huberman (1994, p. 92)

Appendix H

Smarts Survey

Name _____ Date _____

1. What does a body smart person like to do? Please give at least three examples.

_____

_____

_____

2. What does an art smart person like to do? Please give at least three examples.

_____

_____

_____

3. What does a nature smart person like to do? Please give at least three examples.

_____

_____

_____

4. What does a math smart person like to do? Please give at least three examples.

_____

_____

_____

5. What does a word smart person like to do? Please give at least three examples.

_____

_____

_____

6. What does a self smart person like to do? Please give at least three examples.

7. What does a people smart person like to do? Please give at least three examples.

8. What does a music smart person like to do? Please give at least three examples.

9. In which smarts do you think you are strongest? List them and explain why you believe these to be your strengths?

10. Which smarts do you find most challenging? List them and explain why you think this.

11. Think about an activity that uses SEVERAL smarts. Choose an activity that uses at least three different smarts. Describe the activity in detail and explain which smarts it uses.

12. How has learning about the eight smarts helped you become a better learner?

13. Describe *how* you learned about the eight smarts at Cloudberry School. For example, did your teachers tell you about them; did you learn about them at assemblies; did you read books about them?

14. Have the smarts made school more fun? If yes, describe how they have made learning more enjoyable.

Appendix I

Grade 6 China Unit

CHINA
- novel study The House of 60 Fathers
- listen to various Chinese folktales
- write/create a Chinese folktale
- research and write a report comparing how Chinese and Canadians meet their needs.
WORD
- learn some Chinese expressions and vocabulary
- create a travel brochure of famous landmarks
- illustrate Chinese folktale
- create Chinese opera papier-mâché masks
PICTURE
- watercolor paintings
- bamboo brush paintings
- vases based on Legend of the Blue Willow
-watercolor paintings
- panda bears info.
NATURE
- work with partner on hyperstudio presentation
PEOPLE
- peer editing and marking of folktales
-Journal entry eg. If you were a Chinese rice farmer
SELF
-Learning log entry
Top 10 List - interesting facts about China
-self-evaluation of Chinese folktale
8 KINDS OF SMART
A.K.A. MULTIPLE INTELLIGENCES
- listen and analyze elements of Chinese music
- create a MUSIC composition using Orff instruments
- write a song/rap about the Great Wall of China
- Ribbon dance
- Scavenger Hunt- find items made in Pacific Rim countries at home and at school
BODY
- Role-plays
- Dramatize a Chinese folktale or part of the novel study
-Venn diagram comparing Chinese and North American folktales
-latitude and longitude
NUMBER
- Problem Solving Questions
-Timeline of important events
eg. How long would it take to count 1.3 billion people?
B.C./A.D.

Appendix J

Grade 6 Greece Unit

- Work in groups of 4 to create a magazine on how psychological needs were met.
- Share mythological creatures with groups, class, school assembly.
PEOPLE
- Cooperative learning groups of 3 - Mini-projects on social needs.
- Journal entries - If you were a god or goddess
SELF
-Choice of 3D Museum Project
-Self-reflection on project
- listen and analyze elements of Greek music
MUSIC
- write a song/rap about your favorite myth, god or mythological creature.
- making of 3D Museum Project
- dramatization of Greek myths
BODY
- Greek Day - mini-Olympics
- Greek dances
- Geometry unit
- Timeline of important events B.C./A.D.
NUMBER
-Latitude and longitude
-Constellations
-Flight history
- study of constellations
NATURE
8 KINDS OF SMART
A.K.A. MULTIPLE INTELLIGENCES
- read and listen to myths
-research and write about a famous mythological creature
-invent a mythological creature
- Write a description, story, poem etc. about it.
WORD
- Write about 3D Museum Project
-Greek vase etchings
-Papier-mâché Greek vases
PICTURE
- Invent a mythological creature
- 3-D Museum Project
Unit: Ancient Greece
Dates: April - June